AUSTRALIAN MONITOR
INTEGRATION INTELLIGENCE

SERVICE INFORMATION

RMa750
POWER AMPLIFIER

CONTENTS:

SCHEMATIC DIAGRAMS

Australian Monitor
1 Clyde Street, Silverwater NSW 2128 Australia
+61 2 9647 1411
www.australianmonitor.com.au

SIGNAL GROUND
TERMINATION POINT
POWER GROUND
TO/FROM POINT

KMA_BKA.PCB
CH.3 SHOWN. CH.1&2 ARE IDENTICAL.

CH.3 INPUT (@ BACK PANEL)
3
2
1
'XL' TYPE FEMALE
CNA1
CNA4
CA1 100uF/25V
CA2 100uF/25V
RNA1/C 22K
RNA1/A 22K
RNA1/D 22K
RNA1/B 22K
CA4 33pF
CA3 33pF
ICA1 5532
RA1 100R
RA2 1K5
Tp
RVA1 50K Lin
Wp
Shd
ON STATUS PCB
CNA2
CNA3
SPEAKER LINE
MUTE LINE
RA3 68K
RA4
CONVERTER INSERTION POINT
TO CH.3 MAIN AMP.
±15V REGULATED SUPPLY BUSS Via CNA–PSU
CH.3 PRE–AMP +
CH.3 PRE–AMP –
RA5 10R
RA6 10R
RA7 8R2/5W
CA6 100uF/25V
CA7 100uF/25V
TO CHANNELS 1 & 2
–15v TO INPUT MUTE CCT

DENOTES – NOT USED

CH.4 INPUT
CNB1
CNB7
CB1 100uF/25V
CB2 100uF/25V
RNB1/C 22K
RNB1/A 22K
RNB1/D 22K
RNB1/B 22K
CB4 33pF
CB3 33pF
ICB1 5532
RB1 100R
RB2 1K5
RVB1 50K Lin
ON STATUS PCB
CNB2
CNB3
SPEAKER LINE
MUTE LINE
CB5
RB4 0 Ohm
LINK
RB7 68K
CONVERTER INSERTION POINT
TO CH.4 MAIN AMP.
±15V REGULATED SUPPLY BUSS Via CNB–PSU
CH.4 PRE–AMP +
CH.4 PRE–AMP –
RB5 10R
RB6 10R
RB7 8R2/5W
CB6 100uF/25V
CB7 100uF/25V
TO CHANNELS 5 & 6
–15v TO INPUT MUTE CCT
TO REMOTE POWER LED
3/CNB_LED
FROM +15V
FROM REAR PANEL REMOTE POWER SWITCH
CNB6
V+
R
RB37
FROM –15V SUPPLY

KMA_BKB.PCB
CH.4 SHOWN. EXCEPT FOR REMOTE POWER LED WIRE, CH.5&6 ARE IDENTICAL.

NOTE: ALL RESISTORS ARE 0.6 WATT EXCEPT WHERE NOTED.

KMA TO RMA ALTERATIONS.
CONNECTORS – CNA4 and CNB7 NOT USED
COMPONENTS – RLB1, RB37, RA4 AND CB5 NOT USED
COMPONENT – RB4 BECOMES A LINK
POTENTIOMETER RVA/RVB1 IS PCB MOUNT TYPE ON STATUS PCB

DON'T FORGET LINK FOR SPEAKER LINE BETWEEN RA/B15 AND RA/B16

REV	ECO	REVISION NOTE	DRN	APP	DATE
A		ORIGINAL	SMcL		10/10/00

Australian Monitor
by AUDIO TELEX COMMUNICATIONS P/L
149 BEACONSFIELD STREET
SILVERWATER NSW 2128
Phone (61–2) 9647–1411
Fax (61–2) 9748–2537

PRODUCT RMa–750
ASPECT INPUT STEAGE
SHOWING CIRCUIT AND VEALUES
DRAWING/CAD REFERENCE RM7_INS
REV A
DATE 10–10–2000
SHEET 1 OF 8

THIS DRAWING AND THE INFORMATION IT CONTAINS AND IMPLIES IS THE SOLE PROPERTY OF AUDIO TELEX COMMUNICATIONS P/L AND CANNOT BE REPRODUCED IN ANY FORM WITHOUT PRIOR APPROVAL 2000

REMOTE PANEL INTERFACE INPUT TERMINATIONS

INPUT CHANNEL	AMX CONN.	PIN	CRES. CONN.	PIN
1	CN4–A	13	CN5–C	1
2	CN4–A	14	CN5–C	2
3	CN4–A	15	CN5–C	3
4	CN4–A	16	CN5–C	4
5	CN4–A	17	CN5–C	5
6	CN4–A	18	CN5–C	6
7	CN4–A	19	CN5–C	7
8	CN4–A	20	CN5–C	8
9	CN5–A	13	CN5–C	9
10	CN5–A	14	CN5–C	10
11	CN5–A	15	CN5–C	11
12	CN5–A	16	CN5–C	12
13	CN5–A	17	CN5–C	13
14	CN5–A	18	CN5–C	14
15	CN5–A	19	CN5–C	15
16	CN5–A	20	CN5–C	16
GROUND	CN4/5–A	9	CN5–C	17
GROUND	CN4/5–A	11	CN5–C	18
GROUND	CN4/5–A	12	CN5–C	19
GROUND			CN5–C	20

REMOTE PANEL INTERFACE OUTPUT TERMINATIONS

OUTPUT CHANNEL	AMX CONN.	PIN	CRES. CONN.	PIN
1	CN4–A	1	CN4–C	1
2	CN4–A	2	CN4–C	2
3	CN4–A	3	CN4–C	3
4	CN4–A	4	CN4–C	4
5	CN4–A	5	CN4–C	5
6	CN4–A	6	CN4–C	6
7	CN4–A	7	CN4–C	7
8	CN4–A	8	CN4–C	8
9	CN5–A	1	CN4–C	9
10	CN5–A	2	CN4–C	10
11	CN5–A	3	CN4–C	11
12	CN5–A	4	CN4–C	12
13	CN5–A	5	CN4–C	13
14	CN5–A	6	CN4–C	14
15	CN5–A	7	CN4–C	15
16	CN5–A	8	CN4–C	16
SUPPLY	CN4–A	10	CN4–C	17
SUPPLY	CN5–A	10	CN4–C	18
SUPPLY			CN4–C	19
SUPPLY			CN4–C	20

TO CONVERTER BANK–A

Pin	Assignment
1	+5V
2	RELAY SUPPLY
3	GROUND
4	GROUND
5	MUTE 2
6	MUTE 3
7	MUTE 1
8	RELAY 3
9	RELAY 2
10	RELAY 1
11	CONTROL SYS. SUPPLY
12	IN/OUT 3
13	IN/OUT 2
14	IN/OUT 1

TO CONVERTER BANK–B

Assignment	Pin
+5V	1
RELAY SUPPLY	2
GROUND	3
GROUND	4
MUTE 5	5
MUTE 6	6
MUTE 4	7
RELAY 6	8
RELAY 5	9
RELAY 4	10
CONTROL SYS. SUPPLY	11
IN/OUT 6	12
IN/OUT 5	13
IN/OUT 4	14

AMX = 12V
CRES. = 24V
D21 1N4001
RL1
MAINS ACTIVE IN
IN PARALLEL WITH MAINS SWITCH
XFMR ACTIVE IN
REMOTE POWER ENABLE SWITCH (ON BACK PANEL)
SW1
ON STATUS PCB
RL8 AMX–680R CREST'–1K2
3mm BLUE DL4
CN2
CN3
CN6 I G V+ R
SPEAKER RELAY SUPPLY
RB154 DB1
D1 1N4004
R1 10R
IC1 7805
C1 470uF 63V
C2 220uF 35V
BACKPANEL DATA CONNECTION
GRD –DATA +DATA +VE
GROUND +24V (CRESTRON ONLY) SUPPLY
POWER LINK (AMX ONLY)
MOD: CUT TRACK AND JOIN TO +15V PRE–AMP SUPPLY
INPUTS OUTPUTS
FAULT IN
MUTE OUT
REMOTE PANEL INTERFACE
THERMAL DETECT
UNIT READY
REMOTE POWER ENABLE
FAN SPEED
CRESTRON CNPI–16B OR AMX AXP–CPI
REMOTE POWER ACTIVATE
THERMAL R/I
MUTE R/I
RESET
RELAY DISCONNECT
RELAY DISCONNECT ACKNOWLEDGE
THERMAL ACKNOWLEDGE
R2 33K
D2 BAV21
R3 47K
R5 1Meg
IC2 LM393 1/2
RN1/4 10K
C3 100uF 25V
R4 47K
C4 0.01u 50V
C5 0.01u 50V
RN2/1 10K
C6 0.1u 35V
RN2/2 10K
IC3 PIC16C55
R6 100R
C9 1uF 35V
RTCC VDD GRD
MCLR OSC+ OSC–
R7 1Meg
XTL1 4Meg
CL8 33P
CL7 33P
VDD
10K x 6
RN1/6 RN1/7 RN1/8 RN1/9 RN2/9 RN2/8
10K RN1/3
D3–D8
RA2 RA3 RA1 RA0
RB1 RB2 RB3 RB4 RB5 RB6
RC1 RC2 RC3 RC4 RC5 RC6
FAULT OUT
D9–D14
D15–D20
MOD: SHORT OUT THESE DIODES AND ADD PULL UP RESISTORS. AMX = 22K CRESTRON = 10K
RN1/5 10K
RN1/2 10K
VDD
INTERNAL REPORT/IGNORE LINKS
M T
INTERNAL RELAY DISCONNECT LINKS
1 2 3 4 5 6
GRD AC AC
FROM KMA_SS–B PCB
CN7
T F
FROM KMA_SS–B PCB

NOTES:
DNS
SCALE

REV	ECO	REVISION NOTE	DRN	APP	DATE
A		ORIGINAL	SMcL		16/11/00

by AUDIO TELEX COMMUNICATIONS P/L
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Australian Monitor

PRODUCT RMa–750 (REMOTE VERS' OF KMa–750)
ASPECT INTERFACE BOARD
SHOWING CIRCUIT AND VALUES
DRAWING/CAD REFERENCE RM7_INT
REV A
DATE 16–11–2000
SHEET 8 OF 8

THIS DRAWING AND THE INFORMATION IT CONTAINS AND IMPLIES IS THE SOLE PROPERTY OF AUDIO TELEX COMMUNICATIONS P/L AND CANNOT BE REPRODUCED IN ANY FORM WITHOUT PRIOR APPROVAL 2000

RMA_CON.PCB
CH.1/4 SHOWN. CH.2/5 & CH.3/6 ARE IDENTICAL.

FAULT DETECT CCT

IN CUT NULL

AC TO FM CONVERTER

14 PIN IDC HEADER — CN4
WIRES TO CN2/CN3 ON INTERFACE PCB

VDD TO OTHER CHANNELS

SUPPER OUTPUT IN ~

SPEAKER OUTPUT IN ~

FM OUTPUT nd.

FROM CH2/5

FROM CH3/6

RELAY SUPPLY TO OTHER CHANNELS

REMOTE RELAY DISCONNECT

FROM SPEAKER OUTPUT ON PWR BOARD

TO SPEAKER OUTPUT CONNECTOR

RELAY DISCONNECT CONTROL LINE

CONTROL SYSTEM SUPPLY TO OTHER CHANNELS

REMOTE MUTE

MUTE CONTROL LINE

MUTE LINE

TO CHANNEL 2/5

TO CHANNEL 3/6

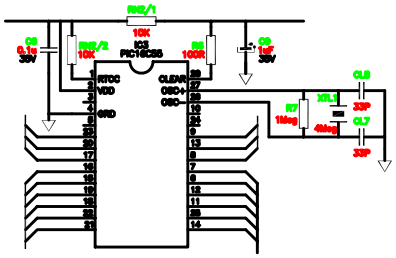
SIGNAL GROUND

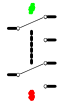
TERMINATION POINT

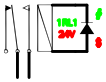
POWER GROUND

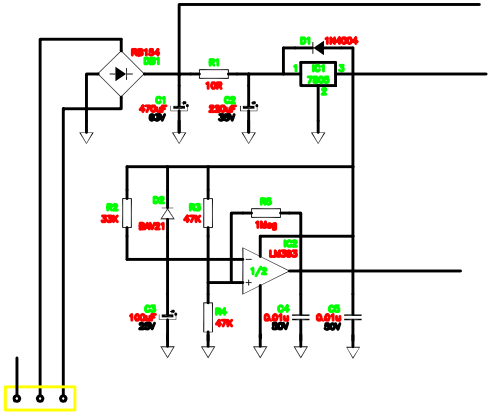
TO/FROM POINT

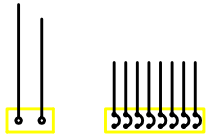
CONNECTOR DISERTION POINT, PLUGS ONTO BACK OF RMA MAIN BOARD.

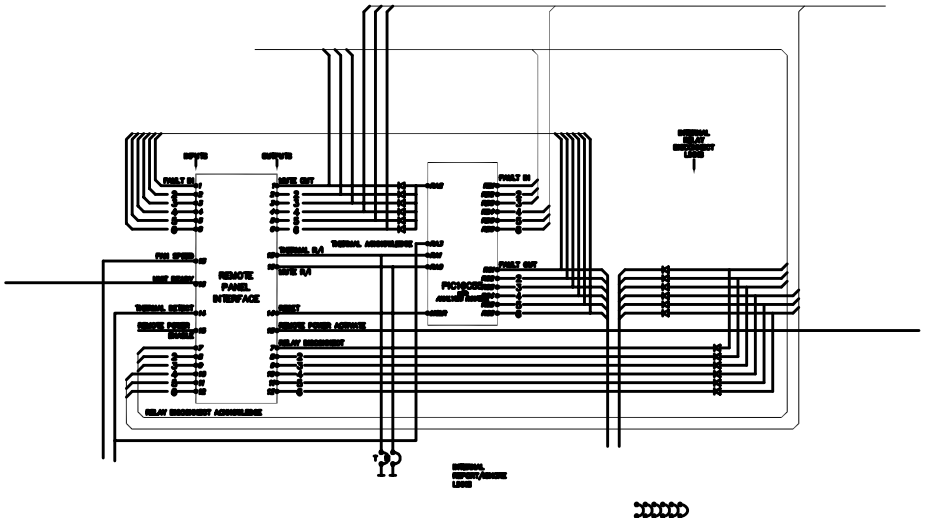


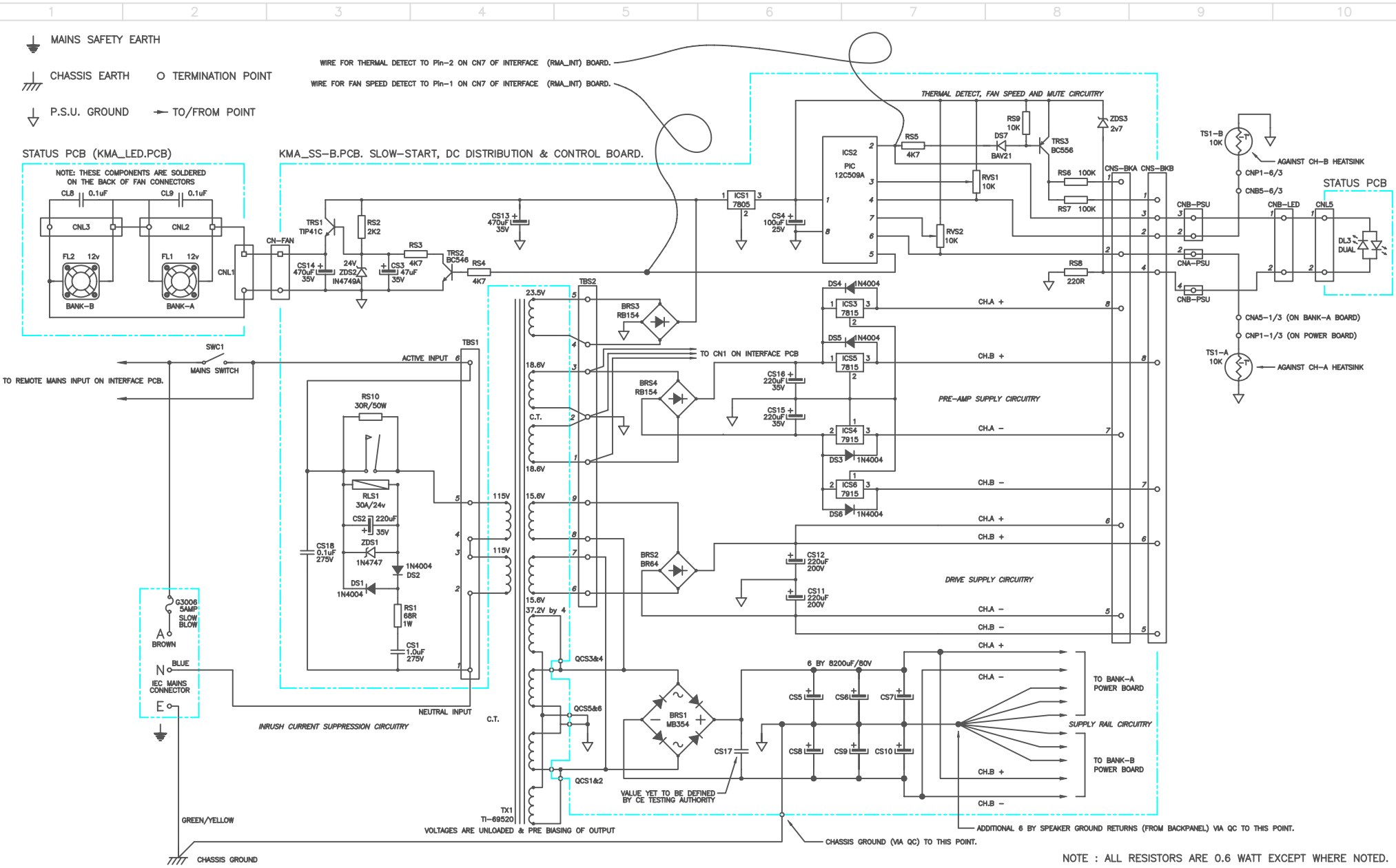











MAINS SAFETY EARTH
CHASSIS EARTH
TERMINATION POINT
P.S.U. GROUND
TO/FROM POINT
WIRE FOR THERMAL DETECT TO Pin-2 ON CN7 OF INTERFACE (RMA_INT) BOARD.
WIRE FOR FAN SPEED DETECT TO Pin-1 ON CN7 OF INTERFACE (RMA_INT) BOARD.
STATUS PCB (KMA_LED.PCB)
NOTE: THESE COMPONENTS ARE SOLDERED ON THE BACK OF FAN CONNECTORS
KMA_SS-B.PCB. SLOW-START, DC DISTRIBUTION & CONTROL BOARD.
THERMAL DETECT, FAN SPEED AND MUTE CIRCUITRY
PRE-AMP SUPPLY CIRCUITRY
DRIVE SUPPLY CIRCUITRY
SUPPLY RAIL CIRCUITRY
INRUSH CURRENT SUPPRESSION CIRCUITRY
TO REMOTE MAINS INPUT ON INTERFACE PCB.
TO CN1 ON INTERFACE PCB
TO BANK-A POWER BOARD
TO BANK-B POWER BOARD
AGAINST CH-B HEATSINK
AGAINST CH-A HEATSINK
CNA5-1/3 (ON BANK-A BOARD)
CNP1-1/3 (ON POWER BOARD)
VOLTAGES ARE UNLOADED & PRE BIASING OF OUTPUT
VALUE YET TO BE DEFINED BY CE TESTING AUTHORITY
ADDITIONAL 6 BY SPEAKER GROUND RETURNS (FROM BACKPANEL) VIA QC TO THIS POINT.
CHASSIS GROUND (VIA QC) TO THIS POINT.
NOTE : ALL RESISTORS ARE 0.6 WATT EXCEPT WHERE NOTED.

NOTES:
THOUGH THE KMA_SS-B PCB IS SIMILAR TO THE KMA_SS PCB, IT HAS BEEN ALTERED TO SUIT THE RMA750.
ALL TRANSFORMER TERMINATIONS HAVE DIFFERENT PIN ASSIGNMENTS ON THEIR RELATIVE CONNECTOR - BEWARE!

REV	ECO	REVISION NOTE	DRN	APP	DATE
A		ORIGINAL	SMcL		9/11/00

by AUDIO TELEX COMMUNICATIONS P/L
149 BEACONSFIELD STREET
SILVERWATER NSW 2128
Phone (61-2) 9647-1411
Fax (61-2) 9748-2537
Australian Monitor

PRODUCT: RMA-750
ASPECT: P<O<WER SUPPLÈY
SHOWING: CIRCUIT D>IA<GRAM re 230V
DRAWING/CAD REFERENCE: RM7_PSU
REV: A
DATE: 9-11-00
SHEET 5 OF 8

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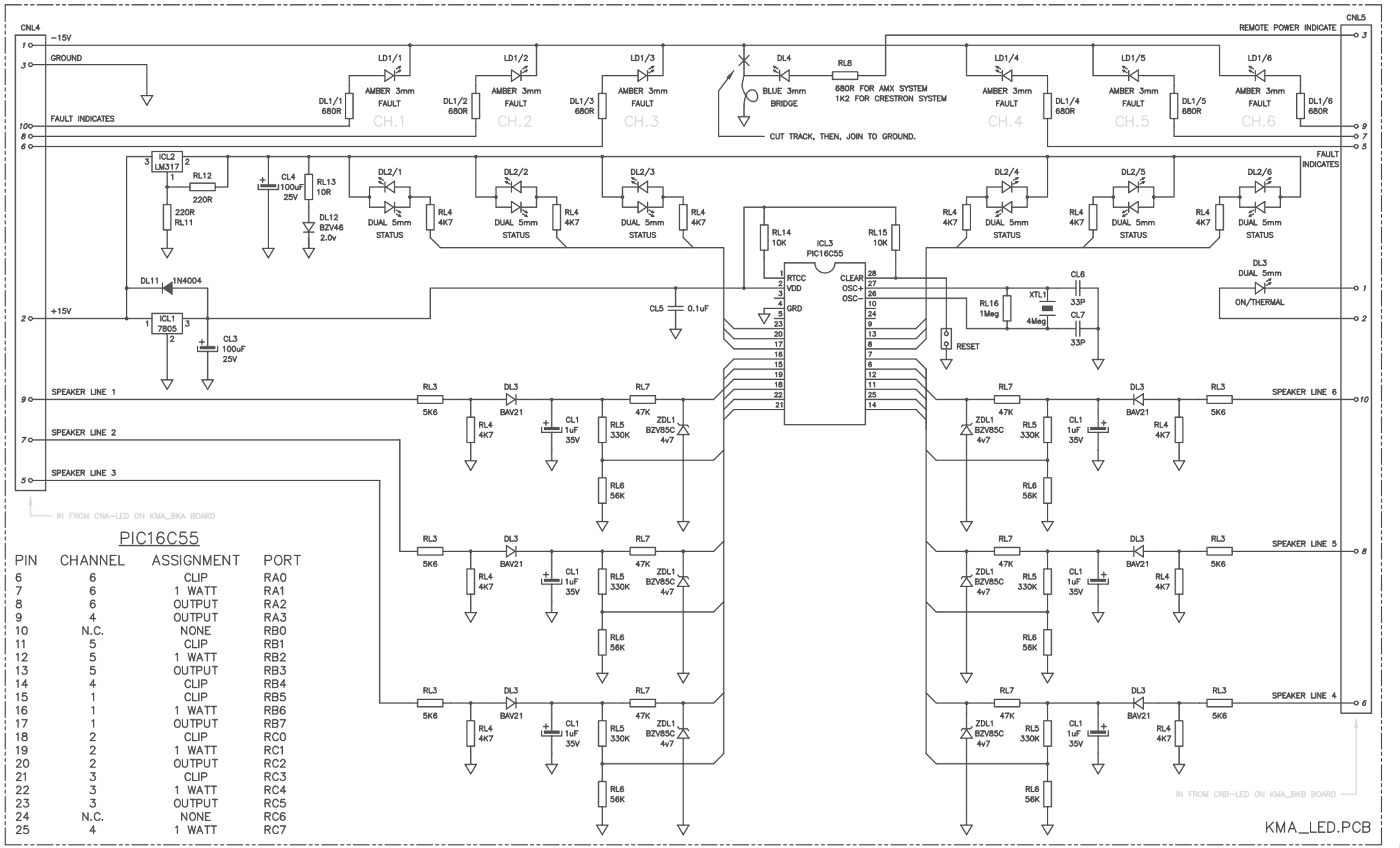

PIC16C55

PIN	CHANNEL	ASSIGNMENT	PORT
6	6	CLIP	RA0
7	6	1 WATT	RA1
8	6	OUTPUT	RA2
9	4	OUTPUT	RA3
10	N.C.	NONE	RB0
11	5	CLIP	RB1
12	5	1 WATT	RB2
13	5	OUTPUT	RB3
14	4	CLIP	RB4
15	1	CLIP	RB5
16	1	1 WATT	RB6
17	1	OUTPUT	RB7
18	2	CLIP	RC0
19	2	1 WATT	RC1
20	2	OUTPUT	RC2
21	3	CLIP	RC3
22	3	1 WATT	RC4
23	3	OUTPUT	RC5
24	N.C.	NONE	RC6
25	4	1 WATT	RC7

KMA TO RMA ALTERATIONS

THE BRIDGE LED IS ALTERED TO A REMOTE POWER INDICATOR.

RL8 HAS A CHANGE OF VALUE AND THE KATHODE SIDE OF THE REMOTE LED HAS TO BE ISOLATED FROM THE NEGATIVE SUPPLY AND DIRECTED TO POWER GROUND.

SCALE N.A.

REV	ECO	REVISION NOTE	DRN	APP	DATE
A		ORIGINAL	SMcL		10/10/00

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149 BEACONSFIELD STREET
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Fax (61−2) 9748−2537
Australian Monitor

PRODUCT RMa−750
ASPECT STEAETUS CIRCUIT
SHOWING CIRCUIT AND VEALUES

DRAWING/CAD REFERENCE RM7_STAT
REV A
DATE 10−10−2000
SHEET 4 OF 8

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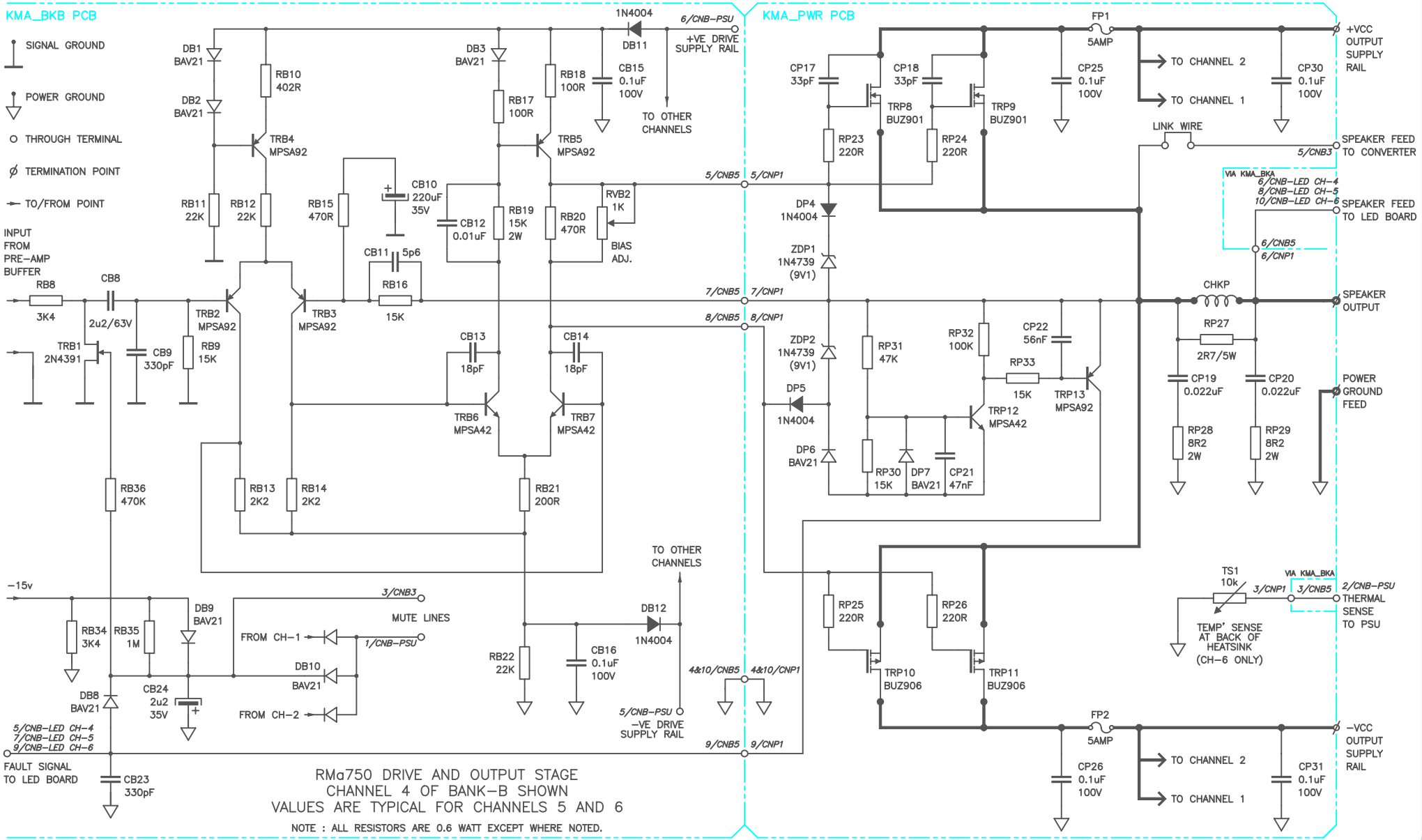

NOTES:

REV	ECO	REVISION NOTE	DRN	APP	DATE
A		ORIGINAL	SMcL		10/10/00

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149 BEACONSFIELD STREET
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Australian Monitor

PRODUCT RMa-750
ASPECT SHOWING MAIN-AMP STAGE - BANK B CIRCUIT AND VALUES
DRAWING/CAD REFERENCE RM7_MASB
REV A
DATE 10-10-2000
SHEET 3 OF 8

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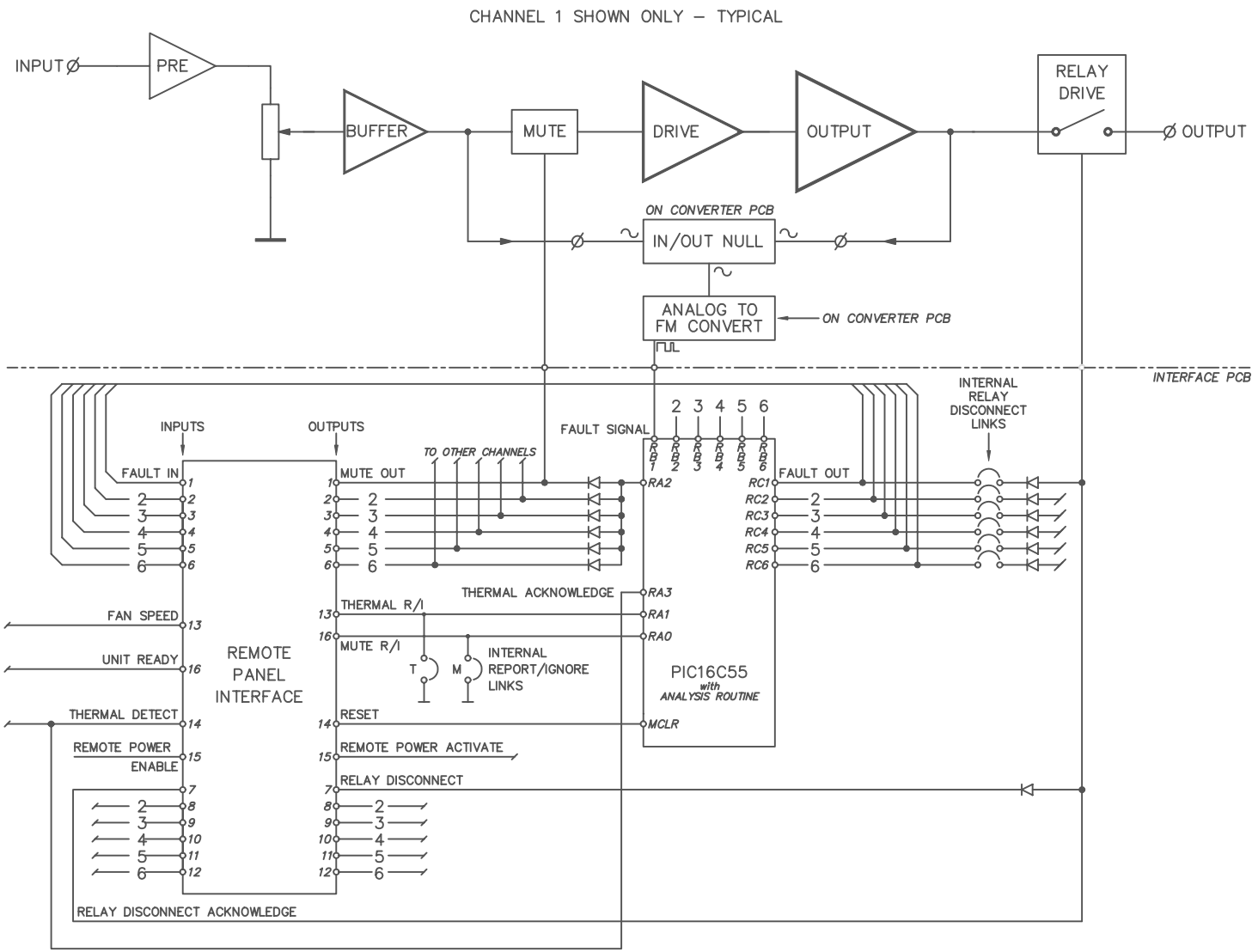

NOTES:

REV	ECO	REVISION NOTE	DRN	APP	DATE
A		ORIGINAL	SMcL		8/8/00

SCALE DNS

Australian Monitor
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Fax (61-2) 9748-2537

PRODUCT RMa-750 (REMOTE VERS' OF KMa-750)
ASPECT CONTROL CIRCUIT
SHOWING BLOCK DIAGRAM
DRAWING/CAD REFERENCE RMA_CBD
REV A
DATE 8-8-2000
SHEET 1 OF 1

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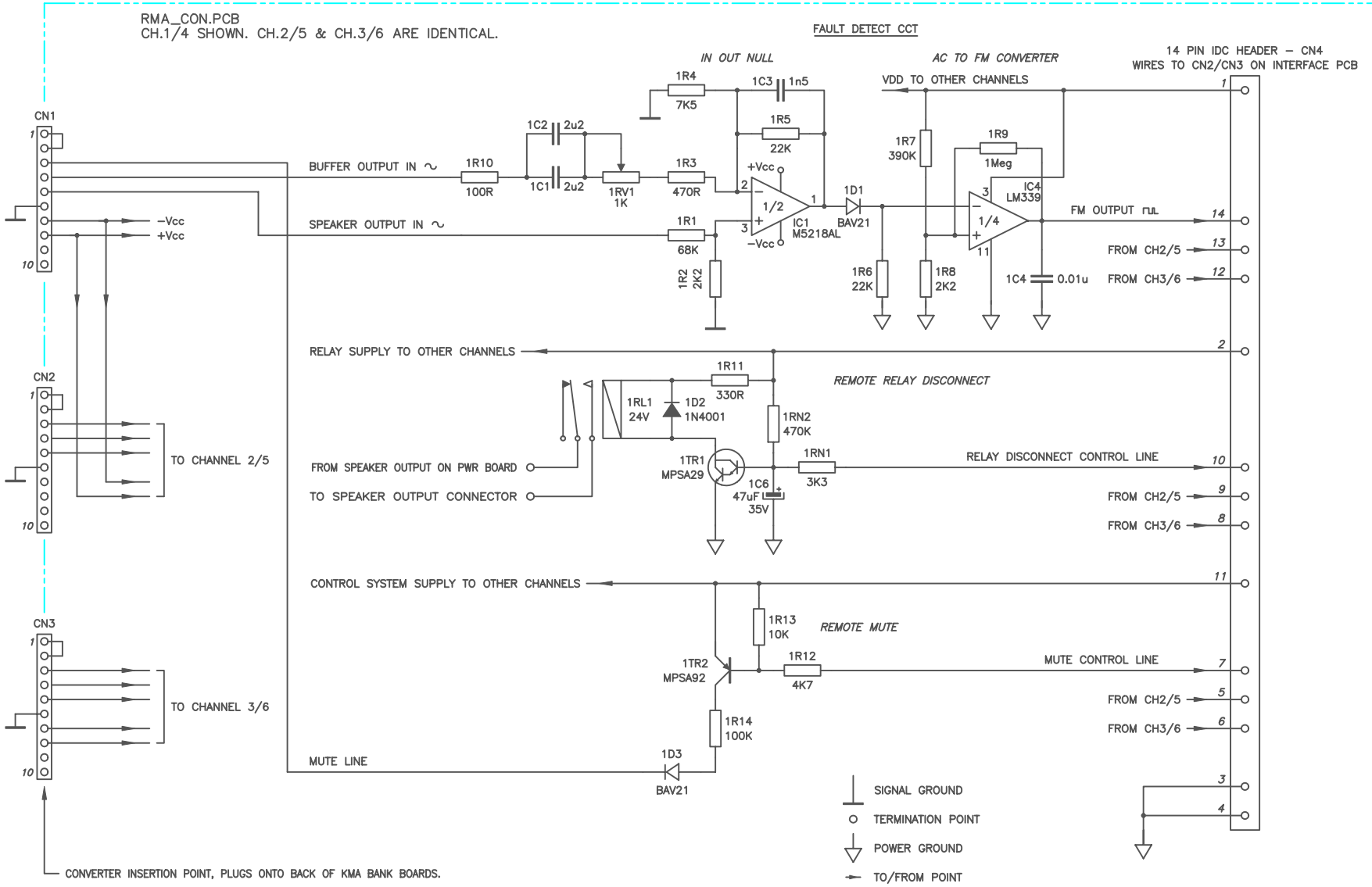
RMA_CON.PCB
CH.1/4 SHOWN. CH.2/5 & CH.3/6 ARE IDENTICAL.



NOTES:

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A		ORIGINAL	SMcL		10/10/00

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149 BEACONSFIELD STREET
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Australian Monitor

PRODUCT: RMa–750
ASPECT: CONVERTER BOARD
SHOWING: CIRCUIT AND VALUES
DRAWING/CAD REFERENCE: RM7_CON
REV: A
DATE: 10–10–2000
SHEET 7 OF 8

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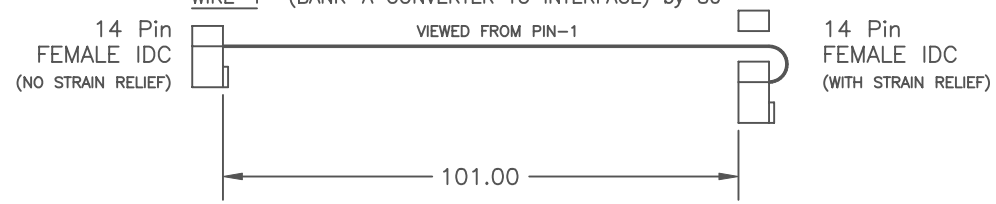
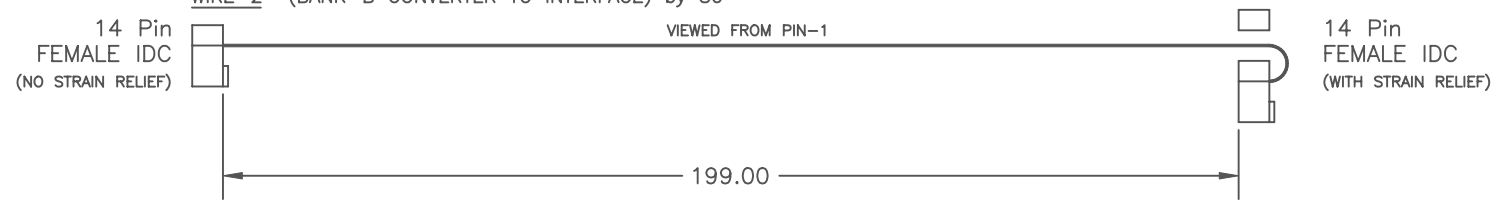
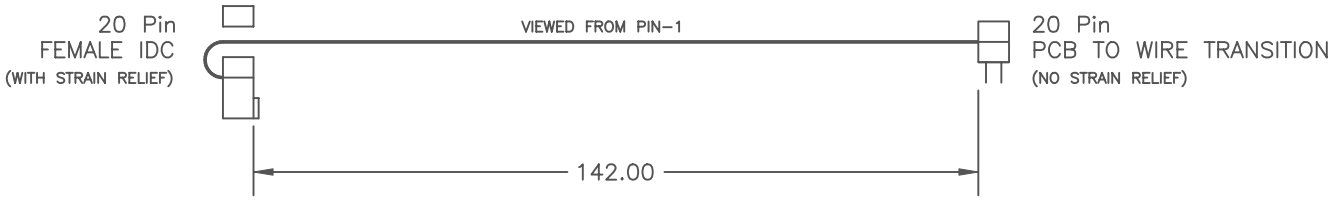
WIRE–1 (BANK–A CONVERTER TO INTERFACE) by 80



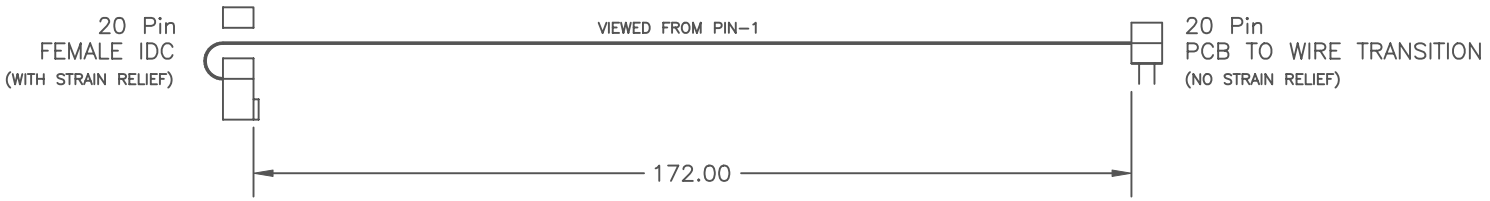
WIRE–2 (BANK–B CONVERTER TO INTERFACE) by 80



WIRE–3 (CRESTRON INPUTS) by 40



WIRE–4 (CRESTRON OUTPUTS) by 40



NOTES:

REV	ECO	REVISION NOTE	DRN	APP	DATE
A		ORIGINAL	SMcL		8/8/00

SCALE 10mm 25 50 100

Australian Monitor
by AUDIO TELEX COMMUNICATIONS P/L
149 BEACONSFIELD STREET
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Phone (61–2) 9647–1411
Fax (61–2) 9748–2537

PRODUCT RMa–750 (REMOTE VERS' OF KMa–750)
ASPECT RIBBON CABLE LOOMS
SHOWING FABRICATION DETAILS

DRAWING/CAD REFERENCE RMA_WIRE
REV A
DATE 8–8–2000
SHEET 1 OF 1

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RMA_CON.PCB
CH.1/4 SHOWN. CH.2/5 & CH.3/6 ARE IDENTICAL.

FAULT DETECT CCT

IN CUT NULL

AC TO FM CONVERTER

14 PIN IDC HEADER — CN4
WIRES TO CN2/CN3 ON INTERFACE PCB

VDD TO OTHER CHANNELS

SUPPER OUTPUT IN ~

SPEAKER OUTPUT IN ~

FM OUTPUT nd.

FROM CH2/5

FROM CH3/6

RELAY SUPPLY TO OTHER CHANNELS

REMOTE RELAY DISCONNECT

FROM SPEAKER OUTPUT ON PWR BOARD

TO SPEAKER OUTPUT CONNECTOR

RELAY DISCONNECT CONTROL LINE

CONTROL SYSTEM SUPPLY TO OTHER CHANNELS

REMOTE MUTE

MUTE CONTROL LINE

MUTE LINE

TO CHANNEL 2/5

TO CHANNEL 3/6

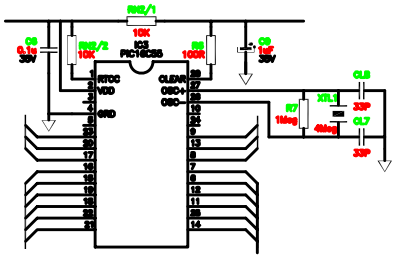
SIGNAL GROUND

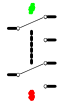
TERMINATION POINT

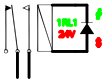
POWER GROUND

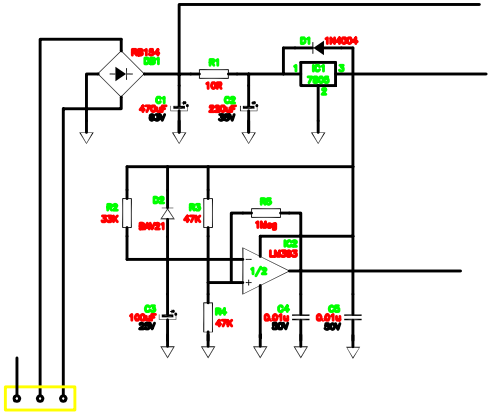
TO/FROM POINT

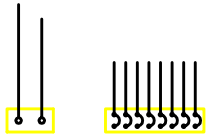
CONNECTOR DISERTION POINT, PLUGS ONTO BACK OF RMA MAIN BOARD.

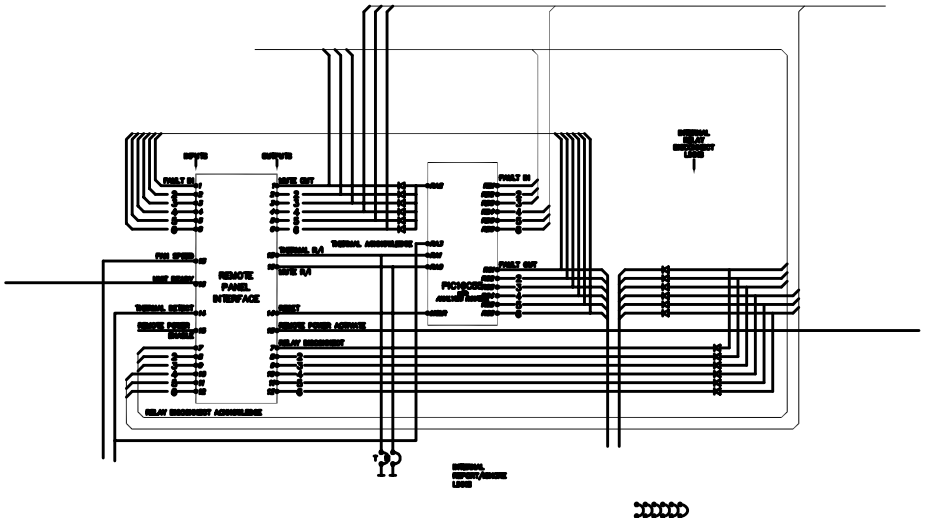


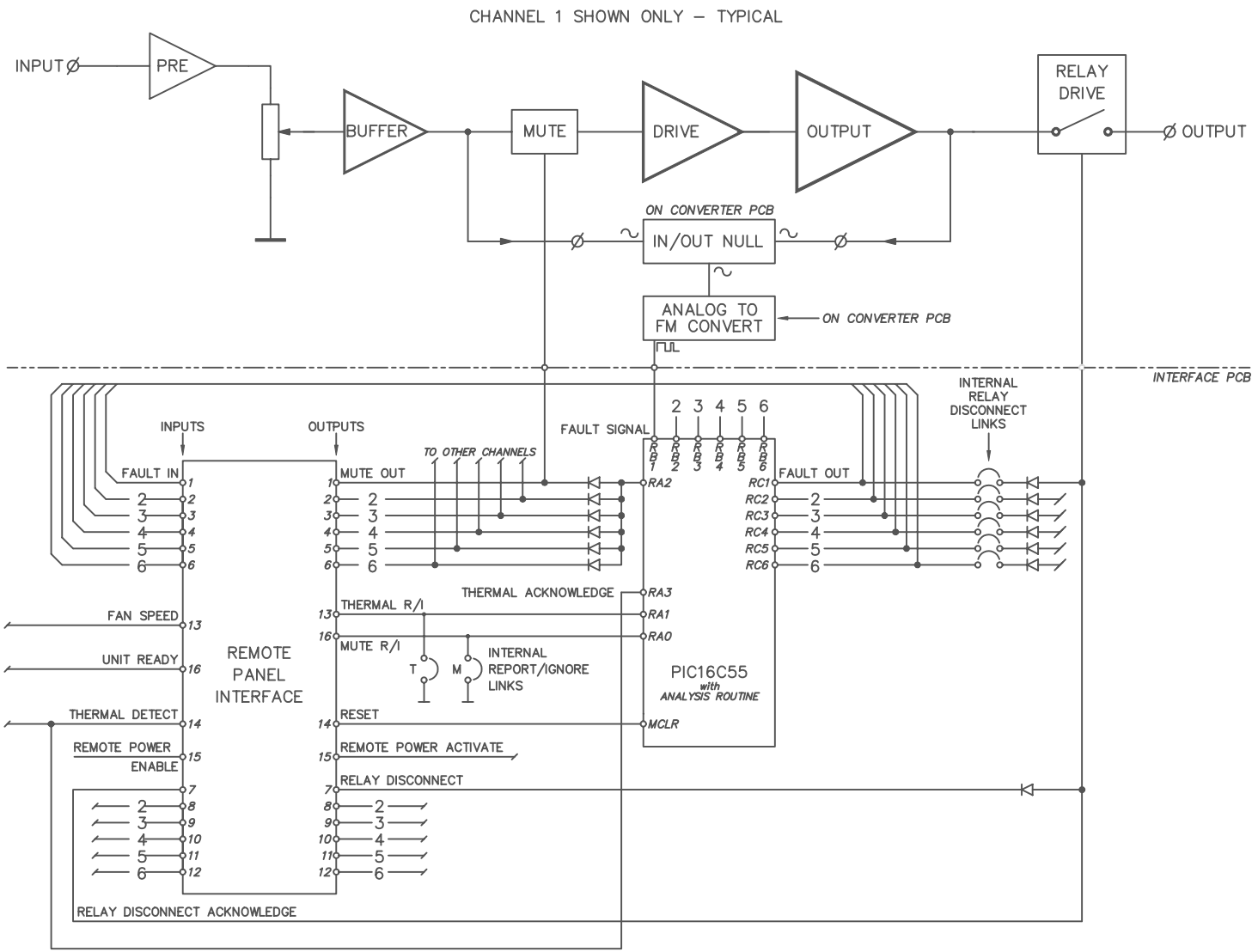












NOTES:

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A		ORIGINAL	SMcL		8/8/00

SCALE DNS

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by AUDIO TELEX COMMUNICATIONS P/L
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PRODUCT RMa-750 (REMOTE VERS' OF KMa-750)
ASPECT CONTROL CIRCUIT
SHOWING BLOCK DIAGRAM
DRAWING/CAD REFERENCE RMA_CBD
REV A
DATE 8-8-2000
SHEET 1 OF 1

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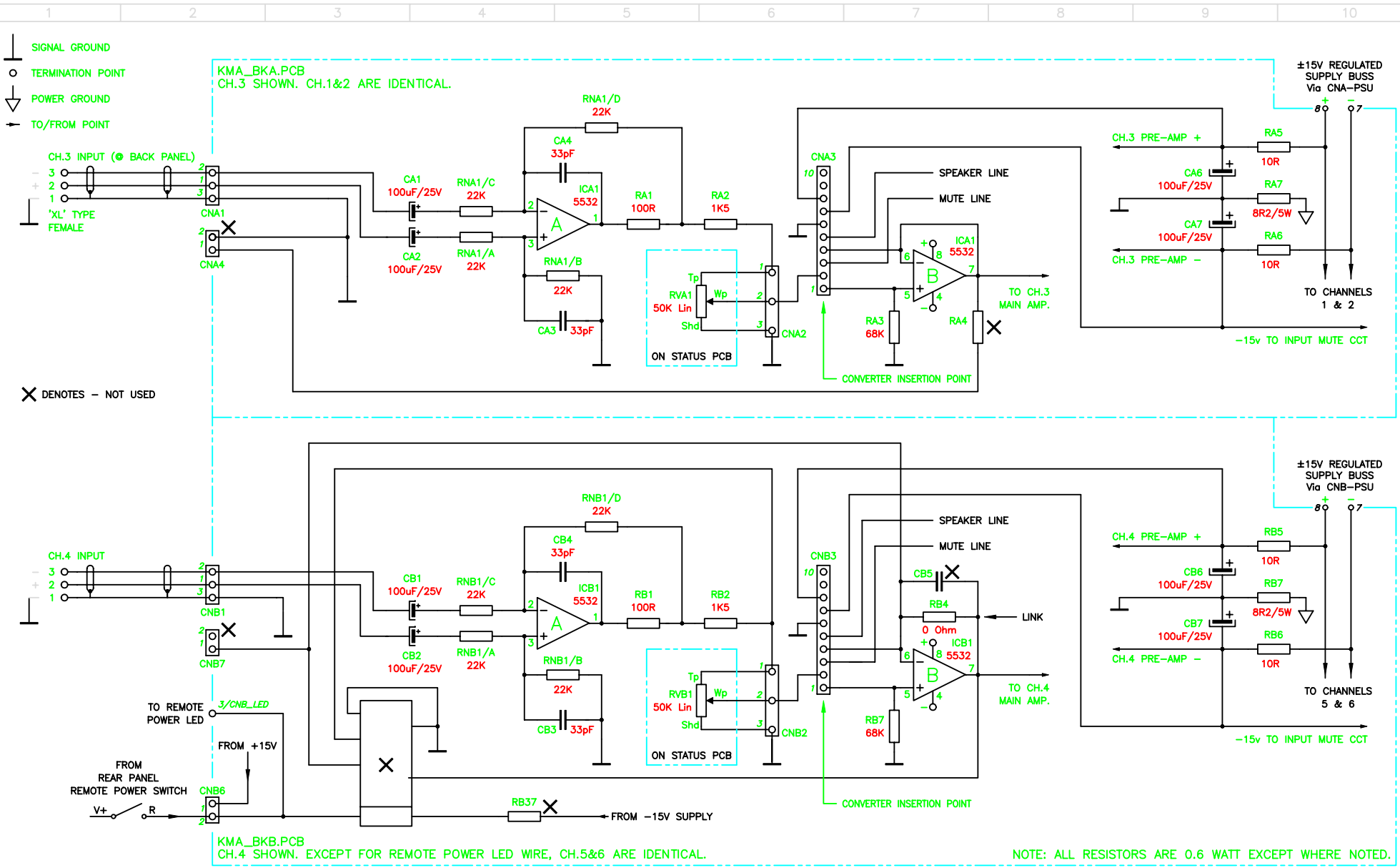

KMA TO RMA ALTERATIONS.

CONNECTORS – CNA4 and CNB7 NOT USED
COMPONENTS – RLB1, RB37, RA4 AND CB5 NOT USED
COMPONENT – RB4 BECOMES A LINK
POTENTIOMETER RVA/RVB1 IS PCB MOUNT TYPE ON STATUS PCB

DON'T FORGET LINK FOR SPEAKER LINE BETWEEN RA/B15 AND RA/B16

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PRODUCT RMa–750
ASPECT INPUT STEAGE
SHOWING CIRCUIT AND VEALUES

DRAWING/CAD REFERENCE RM7_INS
REV A
DATE 10–10–2000
SHEET 1 OF 8

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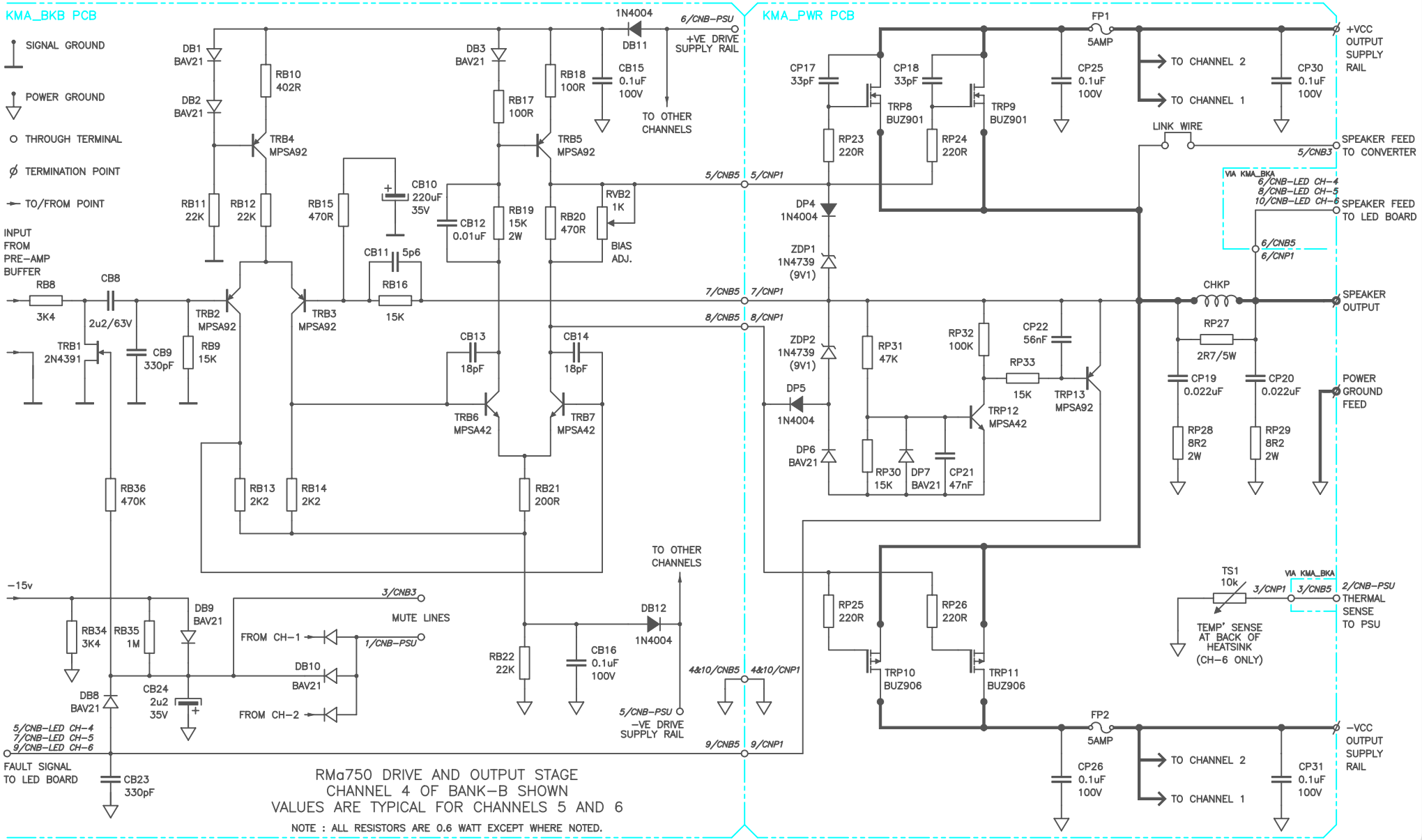

NOTES:

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PRODUCT RMa-750
ASPECT SHOWING MAIN-AMP STEAGE - BANK B CIRCUIT AND VEALUES
DRAWING/CAD REFERENCE RM7_MASB
REV A
DATE 10-10-2000
SHEET 3 OF 8

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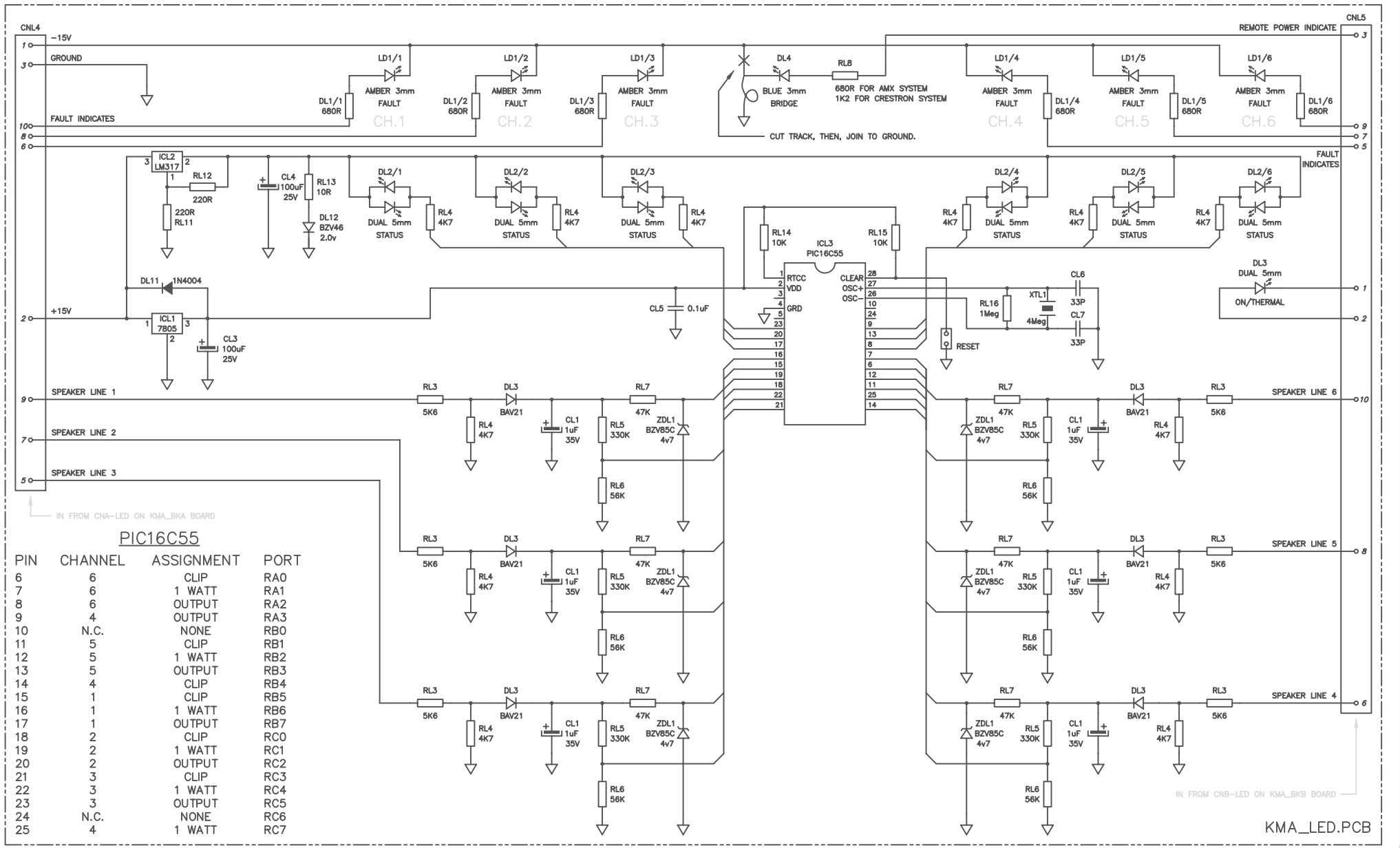

PIC16C55

PIN	CHANNEL	ASSIGNMENT	PORT
6	6	CLIP	RA0
7	6	1 WATT	RA1
8	6	OUTPUT	RA2
9	4	OUTPUT	RA3
10	N.C.	NONE	RB0
11	5	CLIP	RB1
12	5	1 WATT	RB2
13	5	OUTPUT	RB3
14	4	CLIP	RB4
15	1	CLIP	RB5
16	1	1 WATT	RB6
17	1	OUTPUT	RB7
18	2	CLIP	RC0
19	2	1 WATT	RC1
20	2	OUTPUT	RC2
21	3	CLIP	RC3
22	3	1 WATT	RC4
23	3	OUTPUT	RC5
24	N.C.	NONE	RC6
25	4	1 WATT	RC7

KMA TO RMA ALTERATIONS

THE BRIDGE LED IS ALTERED TO A REMOTE POWER INDICATOR.

RL8 HAS A CHANGE OF VALUE AND THE KATHODE SIDE OF THE REMOTE LED HAS TO BE ISOLATED FROM THE NEGATIVE SUPPLY AND DIRECTED TO POWER GROUND.

SCALE N.A.

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PRODUCT RMa−750
ASPECT STEAETUS CIRCUIT
SHOWING CIRCUIT AND VEALUES

DRAWING/CAD REFERENCE RM7_STAT
REV A
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REMOTE PANEL INTERFACE INPUT TERMINATIONS

INPUT CHANNEL	AMX CONN.	PIN	CRES. CONN.	PIN
1	CN4–A	13	CN5–C	1
2	CN4–A	14	CN5–C	2
3	CN4–A	15	CN5–C	3
4	CN4–A	16	CN5–C	4
5	CN4–A	17	CN5–C	5
6	CN4–A	18	CN5–C	6
7	CN4–A	19	CN5–C	7
8	CN4–A	20	CN5–C	8
9	CN5–A	13	CN5–C	9
10	CN5–A	14	CN5–C	10
11	CN5–A	15	CN5–C	11
12	CN5–A	16	CN5–C	12
13	CN5–A	17	CN5–C	13
14	CN5–A	18	CN5–C	14
15	CN5–A	19	CN5–C	15
16	CN5–A	20	CN5–C	16
GROUND	CN4/5–A	9	CN5–C	17
GROUND	CN4/5–A	11	CN5–C	18
GROUND	CN4/5–A	12	CN5–C	19
GROUND			CN5–C	20

REMOTE PANEL INTERFACE OUTPUT TERMINATIONS

OUTPUT CHANNEL	AMX CONN.	PIN	CRES. CONN.	PIN
1	CN4–A	1	CN4–C	1
2	CN4–A	2	CN4–C	2
3	CN4–A	3	CN4–C	3
4	CN4–A	4	CN4–C	4
5	CN4–A	5	CN4–C	5
6	CN4–A	6	CN4–C	6
7	CN4–A	7	CN4–C	7
8	CN4–A	8	CN4–C	8
9	CN5–A	1	CN4–C	9
10	CN5–A	2	CN4–C	10
11	CN5–A	3	CN4–C	11
12	CN5–A	4	CN4–C	12
13	CN5–A	5	CN4–C	13
14	CN5–A	6	CN4–C	14
15	CN5–A	7	CN4–C	15
16	CN5–A	8	CN4–C	16
SUPPLY	CN4–A	10	CN4–C	17
SUPPLY	CN5–A	10	CN4–C	18
SUPPLY			CN4–C	19
SUPPLY			CN4–C	20

TO CONVERTER BANK–A

Pin	Assignment
1	+5V
2	RELAY SUPPLY
3	GROUND
4	GROUND
5	MUTE 2
6	MUTE 3
7	MUTE 1
8	RELAY 3
9	RELAY 2
10	RELAY 1
11	CONTROL SYS. SUPPLY
12	IN/OUT 3
13	IN/OUT 2
14	IN/OUT 1

TO CONVERTER BANK–B

Assignment	Pin
+5V	1
RELAY SUPPLY	2
GROUND	3
GROUND	4
MUTE 5	5
MUTE 6	6
MUTE 4	7
RELAY 6	8
RELAY 5	9
RELAY 4	10
CONTROL SYS. SUPPLY	11
IN/OUT 6	12
IN/OUT 5	13
IN/OUT 4	14

AMX = 12V
CRES. = 24V
D21 1N4001
RL1
MAINS ACTIVE IN
IN PARALLEL WITH MAINS SWITCH
XFMR ACTIVE IN
REMOTE POWER ENABLE SWITCH (ON BACK PANEL)
SW1
ON STATUS PCB
RL8 AMX–680R CREST'–1K2
3mm BLUE DL4
CN2
CN3
CN6 I G V+ R
SPEAKER RELAY SUPPLY
RB154 DB1
D1 1N4004
R1 10R
IC1 7805
C1 470uF 63V
C2 220uF 35V
BACKPANEL DATA CONNECTION
GRD –DATA +DATA +VE
GROUND +24V (CRESTRON ONLY) SUPPLY
POWER LINK (AMX ONLY)
MOD: CUT TRACK AND JOIN TO +15V PRE–AMP SUPPLY
INPUTS OUTPUTS
FAULT IN
MUTE OUT
REMOTE PANEL INTERFACE
THERMAL DETECT
UNIT READY
REMOTE POWER ENABLE
FAN SPEED
CRESTRON CNPI–16B OR AMX AXP–CPI
REMOTE POWER ACTIVATE
THERMAL R/I
MUTE R/I
RESET
RELAY DISCONNECT
RELAY DISCONNECT ACKNOWLEDGE
THERMAL ACKNOWLEDGE
R2 33K
D2 BAV21
R3 47K
R5 1Meg
IC2 LM393 1/2
RN1/4 10K
C3 100uF 25V
R4 47K
C4 0.01u 50V
C5 0.01u 50V
RN2/1 10K
C6 0.1u 35V
RN2/2 10K
IC3 PIC16C55
R6 100R
C9 1uF 35V
RTCC VDD GRD
MCLR OSC+ OSC–
R7 1Meg
XTL1 4Meg
CL8 33P
CL7 33P
VDD
10K x 6
RN1/6 RN1/7 RN1/8 RN1/9 RN2/9 RN2/8
10K RN1/3
D3–D8
RA2 RA3 RA1 RA0
RB1 RB2 RB3 RB4 RB5 RB6
RC1 RC2 RC3 RC4 RC5 RC6
FAULT OUT
D9–D14
D15–D20
MOD: SHORT OUT THESE DIODES AND ADD PULL UP RESISTORS. AMX = 22K CRESTRON = 10K
RN1/5 10K
RN1/2 10K
VDD
INTERNAL REPORT/IGNORE LINKS
M T
INTERNAL RELAY DISCONNECT LINKS
1 2 3 4 5 6
GRD AC AC
FROM KMA_SS–B PCB
CN7
T F
FROM KMA_SS–B PCB

NOTES:
DNS
SCALE

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A		ORIGINAL	SMcL		16/11/00

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Australian Monitor

PRODUCT RMa–750 (REMOTE VERS' OF KMa–750)
ASPECT INTERFACE BOARD
SHOWING CIRCUIT AND VALUES
DRAWING/CAD REFERENCE RM7_INT
REV A
DATE 16–11–2000
SHEET 8 OF 8

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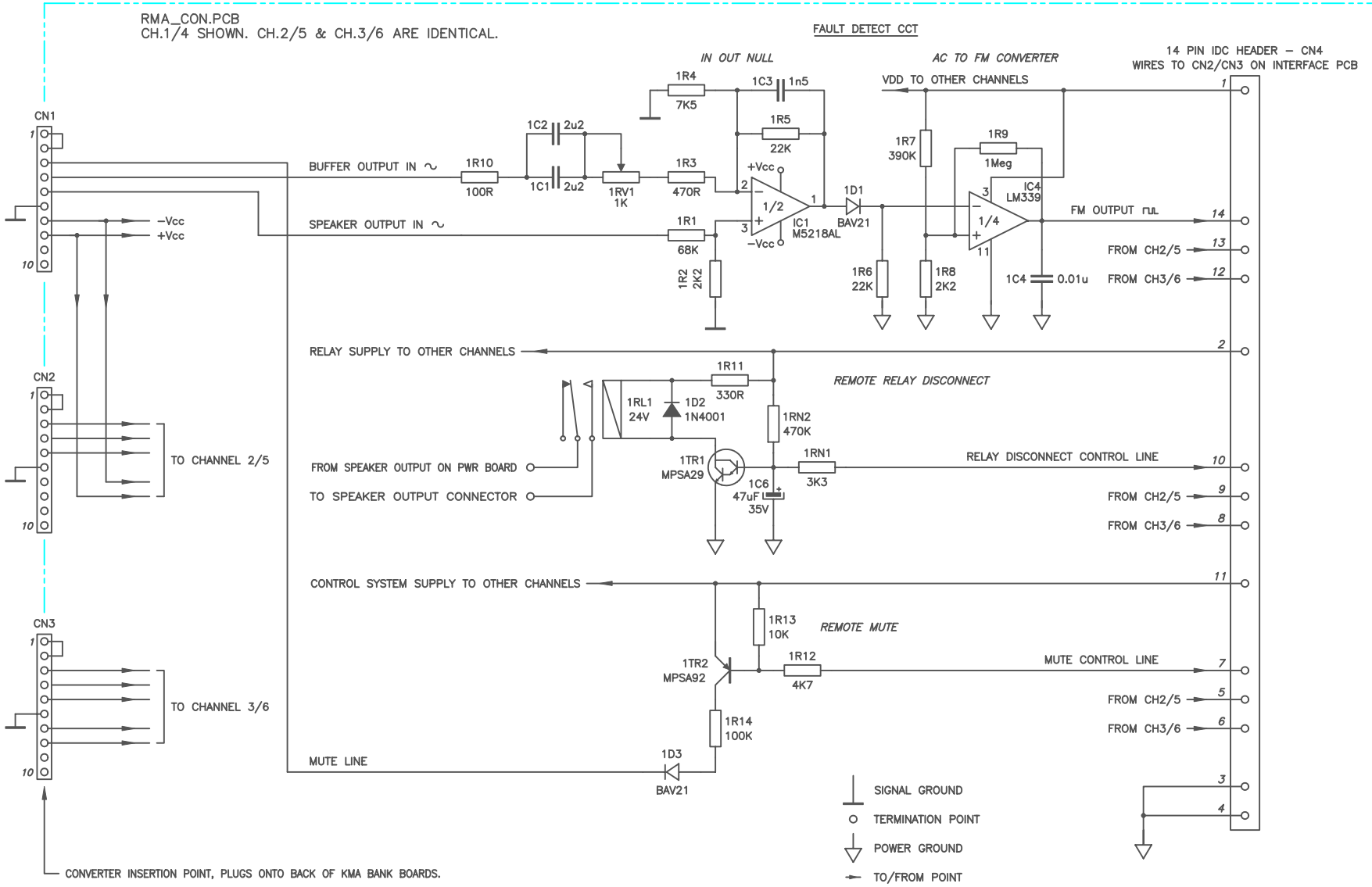
RMA_CON.PCB
CH.1/4 SHOWN. CH.2/5 & CH.3/6 ARE IDENTICAL.



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Australian Monitor

PRODUCT: RMa–750
ASPECT: CONVERTER BOARD
SHOWING: CIRCUIT AND VALUES
DRAWING/CAD REFERENCE: RM7_CON
REV: A
DATE: 10–10–2000
SHEET 7 OF 8

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SIGNAL GROUND
TERMINATION POINT
POWER GROUND
TO/FROM POINT

KMA_BKA.PCB
CH.3 SHOWN. CH.1&2 ARE IDENTICAL.

CH.3 INPUT (@ BACK PANEL)
3
2
1
'XL' TYPE FEMALE
CNA1
CNA4
CA1 100uF/25V
CA2 100uF/25V
RNA1/C 22K
RNA1/A 22K
RNA1/D 22K
RNA1/B 22K
CA4 33pF
CA3 33pF
ICA1 5532
RA1 100R
RA2 1K5
Tp
RVA1 50K Lin
Wp
Shd
ON STATUS PCB
CNA2
CNA3
SPEAKER LINE
MUTE LINE
RA3 68K
RA4
CONVERTER INSERTION POINT
TO CH.3 MAIN AMP.
±15V REGULATED SUPPLY BUSS Via CNA–PSU
CH.3 PRE–AMP +
CH.3 PRE–AMP –
RA5 10R
RA6 10R
RA7 8R2/5W
CA6 100uF/25V
CA7 100uF/25V
TO CHANNELS 1 & 2
–15v TO INPUT MUTE CCT

DENOTES – NOT USED

CH.4 INPUT
CNB1
CNB7
CB1 100uF/25V
CB2 100uF/25V
RNB1/C 22K
RNB1/A 22K
RNB1/D 22K
RNB1/B 22K
CB4 33pF
CB3 33pF
ICB1 5532
RB1 100R
RB2 1K5
RVB1 50K Lin
ON STATUS PCB
CNB2
CNB3
SPEAKER LINE
MUTE LINE
CB5
RB4 0 Ohm
LINK
RB7 68K
CONVERTER INSERTION POINT
TO CH.4 MAIN AMP.
±15V REGULATED SUPPLY BUSS Via CNB–PSU
CH.4 PRE–AMP +
CH.4 PRE–AMP –
RB5 10R
RB6 10R
RB7 8R2/5W
CB6 100uF/25V
CB7 100uF/25V
TO CHANNELS 5 & 6
–15v TO INPUT MUTE CCT
TO REMOTE POWER LED
3/CNB_LED
FROM +15V
FROM REAR PANEL REMOTE POWER SWITCH
CNB6
V+
R
RB37
FROM –15V SUPPLY

KMA_BKB.PCB
CH.4 SHOWN. EXCEPT FOR REMOTE POWER LED WIRE, CH.5&6 ARE IDENTICAL.

NOTE: ALL RESISTORS ARE 0.6 WATT EXCEPT WHERE NOTED.

KMA TO RMA ALTERATIONS.
CONNECTORS – CNA4 and CNB7 NOT USED
COMPONENTS – RLB1, RB37, RA4 AND CB5 NOT USED
COMPONENT – RB4 BECOMES A LINK
POTENTIOMETER RVA/RVB1 IS PCB MOUNT TYPE ON STATUS PCB

DON'T FORGET LINK FOR SPEAKER LINE BETWEEN RA/B15 AND RA/B16

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PRODUCT RMa–750
ASPECT INPUT STEAGE
SHOWING CIRCUIT AND VEALUES
DRAWING/CAD REFERENCE RM7_INS
REV A
DATE 10–10–2000
SHEET 1 OF 8

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RMA750 Overview

Following is an overview of the RMa750 6 channel amplifier including installation and programming aspects when using:

1) CRESTRON CNPI/ CPI-16B Custom Panel Interface card.
2) AMX AXP-CPI16 Custom Panel Interface card.

These cards are able to accept up to 16 inputs from the amplifier and the cards also have 16 outputs which can be used to control a number of aspects of the amplifier.

In addition to the standard amplifier (KMa750), we add a control system to amplifier interface. This interface takes various analogue and status signals within the amplifier and converts them to a logic level (which is buffered) which can then be interpreted by the custom interface cards for processing by the control system.

It is important to note that the use of the Crestron/AMX system in relation to the amplifiers is a supervisory one. On this basis, the normal operation of the amplifier is not dependant on the control system at all. The control system merely monitors various operational aspects of the amplifier and reports any faults to the system where appropriate action can be taken, either by an operator, a program or internally within the amplifier (which can be fed back to the control system).

Ultimately it is felt the system should operate as a fault monitoring system which can/ should/ will isolate offending channels, report to the system and allow for redundancy aspects if required.

Due to the 6 channels of the RMa and the limit of 16 channels of the Panel Interface cards, an overall fault detection circuit for each channel has been employed and is referred to as the input to output (in/out) fault detect circuit.

The input to output fault detection circuit is very broad in its detection ability and has to be a two way type of detector. Simplified, the fault may be input signal but no output or, output with no input signal. Any difference between input or output has to be considered as a fault and reported to the system.

The detection circuitry is basically a differential type circuit which null’s input voltage against output voltage. The output of the amplifier is applied to the differentiating circuit without any compensation. The input signal is applied to the circuit with compensation to emulate the bandwidth and phase response the amplifier. The circuit is full amplifier bandwidth.

Any deviation/difference of signal, other than the fixed input to output gain of the amplifier and a small window of tolerance within the detection circuitry, will output a signal to a micro on the amplifier interface for analysis. The in/out detector will show any fault including, D.C supply faults (post pre-amp when signal is applied), D.C. on the output, oscillation, abnormally high noise (that is not input born), a muted amplifier, various circuit failures, bad connections, sustained clipping etc. The circuit does not need signal to alert the system if the amplifier is outputting a signal with no input signal applied such as D.C., oscillation or out of specification noise. This then also doubles up

as an early warning system as well. A fault from the in/out detect circuit will pass through an internally selectable link which will either have the amplifier disconnect the offending channels relay or have the program (via the control system) open the output relay of the offending channel.

The biggest problem for in/out detect is that clipping is essentially an input to output fault and the reality is that transients (regardless of preceding signal processing) will generate an in/out fault due to clipping. The micro on the amplifier interface has been programmed to allow a certain amount of clipping to occur before reporting a fault. A considerable amount of time was spent to come up with a suitable routine that took into consideration the ballistics of the status indicator, frequency and ultimately the power handling ability of speakers envisaged to be used within the installation.

Power

The power for the CNPI/ CPI cards is sourced externally from the amplifiers and is required to be supplied by the CRESTNET II/AXLink network. Though most of the interfacing to the cards is powered internally by the amplifier and provides very little loading to the network, there is some obvious loading that should be considered.

1) To enable the use of a remote power up/down facility, the CNPI/ CPI card has to switch a high current relay within the amplifier.
2) The indicator for Remote Power enable/standby requires power from the CRESTNET network.

We should consider 1mA per input and output, 20mA for the Remote Power LED, 40 mA for the remote power relay on a Crestron system and 80mA for the remote power relay on an AMX system. The Quiescent current draw of the CNPI card is approximately 100mA and 25mA on a CPI card, thus a total of around **200mA minimum** should be allowed for per CNPI/ CPI card within this system. The loading of all the CNPI/ CPI cards for the amplifier system could be substantial and the high level of current can cause substantial voltage drops over long cable lengths so booster type power supplies should be located close to the amplifiers to minimise insertion loss type problems.

Ground

Grounding for the system is crucial. The amplifier has many ground schemes, one for mains power and the high current outputs, one for input signal, one for pre-amps and a separate one for the control system to amplifier interface. The control system earth connecting to each amplifier is not connected internally to the amplifiers grounding schemes. The CNPI/ CPI card is resistively isolated to the amplifier and the amplifier's interface. The control system earth/ground must be at the same ground potential as the amplifiers. A Technical type earth must be near the amplifiers and the system should attain "STAR" grounding to this point!!!! Make sure you earth the booster power supplies - they are not to be allowed to float. Ensure this before anything is ever turned on!!!!!!!

NOTE: If Signal ground lifting is to be used, suitable shielding of the input still needs to be maintained. If Pin-1 on the interconnecting XLR (source equipment) is all you are relying on, you may be in trouble as the source may not be providing a true ground for the shield (you should check this out). You must ensure proper shielding.

The amplifier is supplied with a 4 pin Phoenix type data connector (similar to the ones Crestron and AMX utilise). We will be supplying the connecting in line plug as well. The connectors are Phoenix branded where the panel mount male socket is a: **DFK-MSTB 2.5/4-G-5.08,**

and the in line female plug is a: **MSTB 2.5/4-ST-5.08**

Due to these companies wanting to look a little bit different, the wiring for the AXlink buss and the Crestnet buss is exactly opposite. To avoid adding extra cost and dedicated panels for each system we have included both wiring legends on the back panel and the orientation of the connector displays the appropriate legend.

Above the connector is a field where the ADDRESS / ID CODE of each amplifier will be marked. As the Custom panel interface cards are internally fitted we need to set these address's / codes during manufacture of the RMa units. Please provide us with this information at your earliest.

A spreadsheet (RMa_PROG.XLS) of operational and control parameters is attached to aid programming of the system.

Channel assignments re CNPI/ CPI cards.

NOTE: High = off and Low = on.

INPUTS

Input to Output faults (normally high)
Channels 1 to 6 monitor Input to Output faults.

Channel 1 = Channel 1 of the amplifier
Channel 2 = Channel 2 of the amplifier
Channel 3 = Channel 3 of the amplifier
Channel 4 = Channel 4 of the amplifier
Channel 5 = Channel 5 of the amplifier
Channel 6 = Channel 6 of the amplifier

The amplifier's interface simply monitors that the input to output gain and signal integrity is the same. If it is to vary then the CNPI/ CPI input for the offending channel will flag the system. The in/out detector will show any fault including, D.C quiescent faults (post pre-amp), D.C. on the output, Oscillation, abnormally high noise (that is not input born), a muted amplifier, various circuit failures, bad connections, clipping etc,etc. The circuit is not sensitive to gain alteration via the front panel attenuator. An input to output fault has to be maintained before the system is flagged. This is accomplished by oversampling by the internal micro which will then latch the offending channels CNPI/ CPI input. An input to output fault should automatically disconnect the offending channel. This can be accomplished two ways.

1) The system is alerted to the fault and takes action by opening the offending channels output speaker relay,

or

2) The system is alerted to the fault but the amplifier has automatically opened the relay of the offending channel.

A 2 pin header on the amplifier interface is utilised to select which option is appropriate. We will be supplying the units with a header link in place which will have the amplifier automatically open the relay.

Once a fault is detected the CNPI/CPI input is held/latched low. The input will remain in this state until a reset from the control system is detected (via channel 14 on CNPI/.CPI output).

Amplifier Channel Isolated Indication (normally high)
Channels 7 to 12 monitor speaker output relay status.

Channel 7 = Channel 1 of the amplifier
Channel 8 = Channel 2 of the amplifier
Channel 9 = Channel 3 of the amplifier
Channel 10 = Channel 4 of the amplifier
Channel 11 = Channel 5 of the amplifier
Channel 12 = Channel 6 of the amplifier

This facility is used as a feedback indicator to the control system that the speaker output relays have actually been opened either automatically by the amplifier or by the control system. This could be useful when switching in another amplifier channel (as back up) to the speaker feed of the isolated channel.

Fan Speed Detect
Channel 13 (on CNPI/ CPI card) is used to indicate to the system if the cooling fans are on low speed or at high speed. If the fans are at low speed Channel 13 will be **low**, If they are at high speed then Channel 13 will be **high**. Low will be the default position. If after a period of time the amplifier was switching to high speed too soon, then this may indicate the need to unblock the air intake grilles or the load has a fault and is drawing extreme power from the amplifier etc.

Thermal Detect.
Channel 14 is used to indicate if the amplifier has gone thermal. The input will be normally high and will go low when the amplifier has thermalled.
In the thermalled state all amplifier channels are muted internally by the amplifier. The channels will remain muted until the heatsink temperatures have reduced by approximately 20^{o}C after which all channels will automatically un-mute and return to normal operation.

Remote Power Select.

Channel 15 is used to indicate to the system that the rear panel switch on the amplifier has been engaged to enable remote power up / power down of the amplifier.
High = not selected / not enabled,
Low = selected / enabled.
This feature is powered by the Crestnet/AXlink network.

The switch on the back panel will do several functions.

1) It tells the system it is engaged
2) It will indicate on the front panel of the amplifier that it is engaged
3) routes the control system power to feed a relay that will act as the on/off switch.

The problem with remote on/off power is that when you are physically at the amplifier you may want control of the amplifier and not to be locally locked out. If you have not enabled remote power, the front panel on/off switch will work as normal. If remote power is enabled and the system has switched the amplifier on, the front panel switch will not turn the amplifier off. If you require the ability to turn the amplifier off locally then you will have to remove the data cable to the amplifier or disengage the remote power switch.

Unit-Ready/On-Line

Channel 16 has been used to indicate to the system that the amplifier is powered up and ready for operation. Low = ready for operation. High = powered down or not ready and thus any activity from the amplifier's CNPI/ CPI card should be ignored as the amplifier may be establishing itself after its initial power up. High states can indicate mains failure to the amplifier due to a tripped mains breaker or failed internal power supply etc.

To play safe once the system has detected a Unit-Ready/On-Line signal from the amplifier it should do a momentary A.C. Fault Detect Reset (output channel 14). This removes the possibility of the micro on the interface being latched/locked up, due to not being fully discharged (leakage from control system) when the amplifier has been powered down.

Combinations of the Unit-Ready/On-Line state and the remote power enable will indicate whether the amplifier has actually been turned off, has not been turned on or a failure has occurred.

Establishment.

The following is typical of the events as the amplifier powers up.

Inrush Current Suppression.	0.5 seconds
Speaker output relay closure	1 second
Amp Ready Indicator	3 seconds
Input Signal un-mute	4 seconds
Execution of micro Instructions	5 seconds

By the time the micro on the interface is ready to execute its instructions all operating aspects of the amplifier have been fully established.

OUTPUTS.

Channel Mutes (normally high and thus un-muted)
Channels 1 to 6 act as mute control.

Channel 1 = Channel 1 of the amplifier
Channel 2 = Channel 2 of the amplifier
Channel 3 = Channel 3 of the amplifier
Channel 4 = Channel 4 of the amplifier
Channel 5 = Channel 5 of the amplifier
Channel 6 = Channel 6 of the amplifier

Sending these channels low will mute the appropriate amplifier channel.
For whatever reason you may want to mute a channel or channels. It must be noted that in muting a channel (with signal applied) you will invoke the input to output fault circuitry. The mute is internal in the amplifier and alters the amplifiers input to output gain thus invoking a false fault report. The program should be written to ignore Input to Output faults in this state.
A diagnostics mode could be instigated where to check the integrity of the in/out fault detect circuit you deliberately mute the amplifier to invoke the fault.
NOTE: If the amplifier goes into thermal protect mode then the muting of the channels by the amplifier's internal circuitry will also invoke an in/out fault per channel. The amplifier going into thermal protect may be considered as an operational mode or state and is not necessarily a fault.

Now comes all the awkward bits and where you have to make decisions. As you can see, a lot of the monitoring and control aspects interact. This interaction can be used to make decisions for redundancy aspects but complicates programming and creates a lot of activity on the buss and may slow up response time.

As you have seen, if the amplifier goes thermal or if a channel is remotely muted than an in/out fault is reported. You can ignore or use the in/out fault report to the system and deal with them any way you wish but you must remember that a fault has to be reset or it remains a fault.
We will include an ability on the interface (which will be selectable) to not have in/out faults report to the system when the amplifier is in thermal protect mode or when a system command mutes a channel or channels of the amplifier and /or have the reset feature automated by the amplifier when recovering from a thermalled state or system un-muting.

You are employing the use of the amplifier and we are happy to have your input here as to what the default states should be for your installation.

Channel Relays (normally high and thus load connected)
Channels 7 to 12 can be used to open the relays of individual channels.

Channel 7 = Channel 1 of the amplifier
Channel 8 = Channel 2 of the amplifier
Channel 9 = Channel 3 of the amplifier
Channel 10 = Channel 4 of the amplifier
Channel 11 = Channel 5 of the amplifier
Channel 12 = Channel 6 of the amplifier

Channels 13 and 16 of the CNPI/ CPI are not currently being used.

A.C. Fault Detect Reset. (normally high)
Channel 14 is used to reset the micro on the interface. The micro will latch an input relative to the channel reporting an input to output fault. To enable the operator or program to verify a sustained fault condition, a reset has been included to reset the micro so as to un-latch all inputs and re-start the interrogation program of the micro. Sending this output low will reset all channels of the applicable amplifier. This is to be a momentary action only as holding this pin low overides the micro on the amplifier to control system interface.
Input to output faults should be interrogated/verified with the offending channel's relay open (so as not to kill your load in case it is a really big fault). I.E. If a in/out fault is reported, force the channel relay open (to override the resetting of the relay), reset the amplifier and see if the fault occurs again, if not, close the relay - you don't even have to leave your chair.

Remote Power.
Channel 15 has been assigned to provide the control signal to initiate a remote "MAINS" power up of the amplifier. If the amplifier has been enabled for remote power up/down by engaging the rear panel switch then channel 15 going **low** will turn the amplifier on. Channel 15 going high will turn the amplifier off. Channel 15 controls a mains switching relay which is powered by the control system network. A LED on the front panel of the amplifier indicates that remote power has been enabled and this is reflected at the control screen via input channel 15 as well. The front panel mains on/off switch on the amplifier will override the remote system for power on if it is in the "ON" position.
If the "UNIT-READY" input is low (input channel 16) then if the "remote power on" has not been selected but the amplifier has been manually turned on via the front panel switch, the remote power indicator should be ignored in some way.

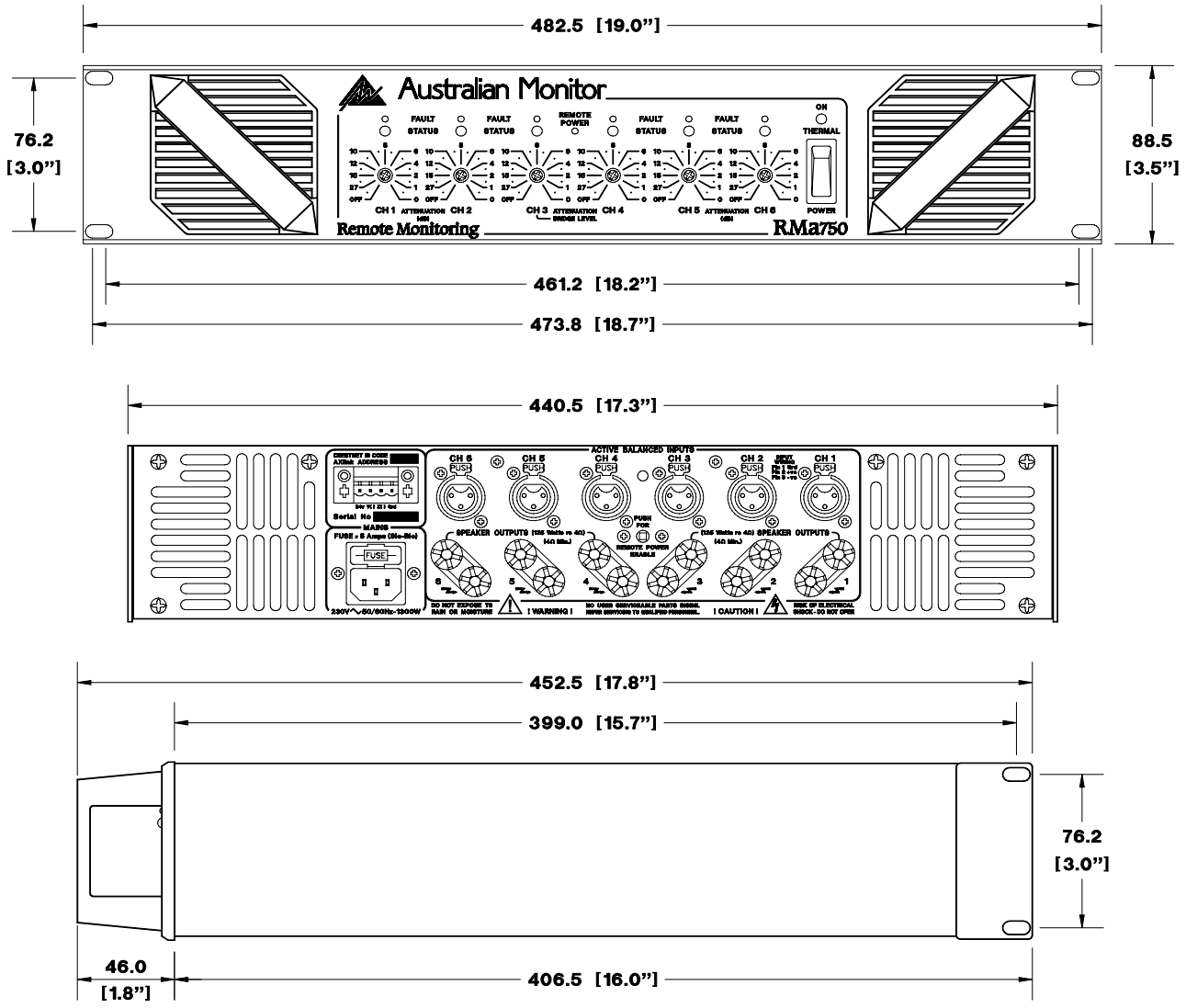
Obviously there will be numerous questions and "what ifs" arise from the above. Various input from all parties involved will ultimately create your final program.

3 drawings have been included with this communique which show the layout and legends of the front and Back panels along with an installation drawing showing major dimensions.

Due to the extended class-A MOSFET output stage of the RMa750, the quiescent (idle) mains current draw is about 1 Amp, the mains fuse is rated at 5 amps and current peaks over 8 amps can be produced. The unit is a 2RU 19" rack mounting unit. Mains termination is via a standard IEC connector, all inputs are 3 pin female XL type connectors where Pin-2 = Hot. Speaker termination is via a heavy duty 3/4" (19mm) spaced binding posts which will accept cable up to 4mm^2.

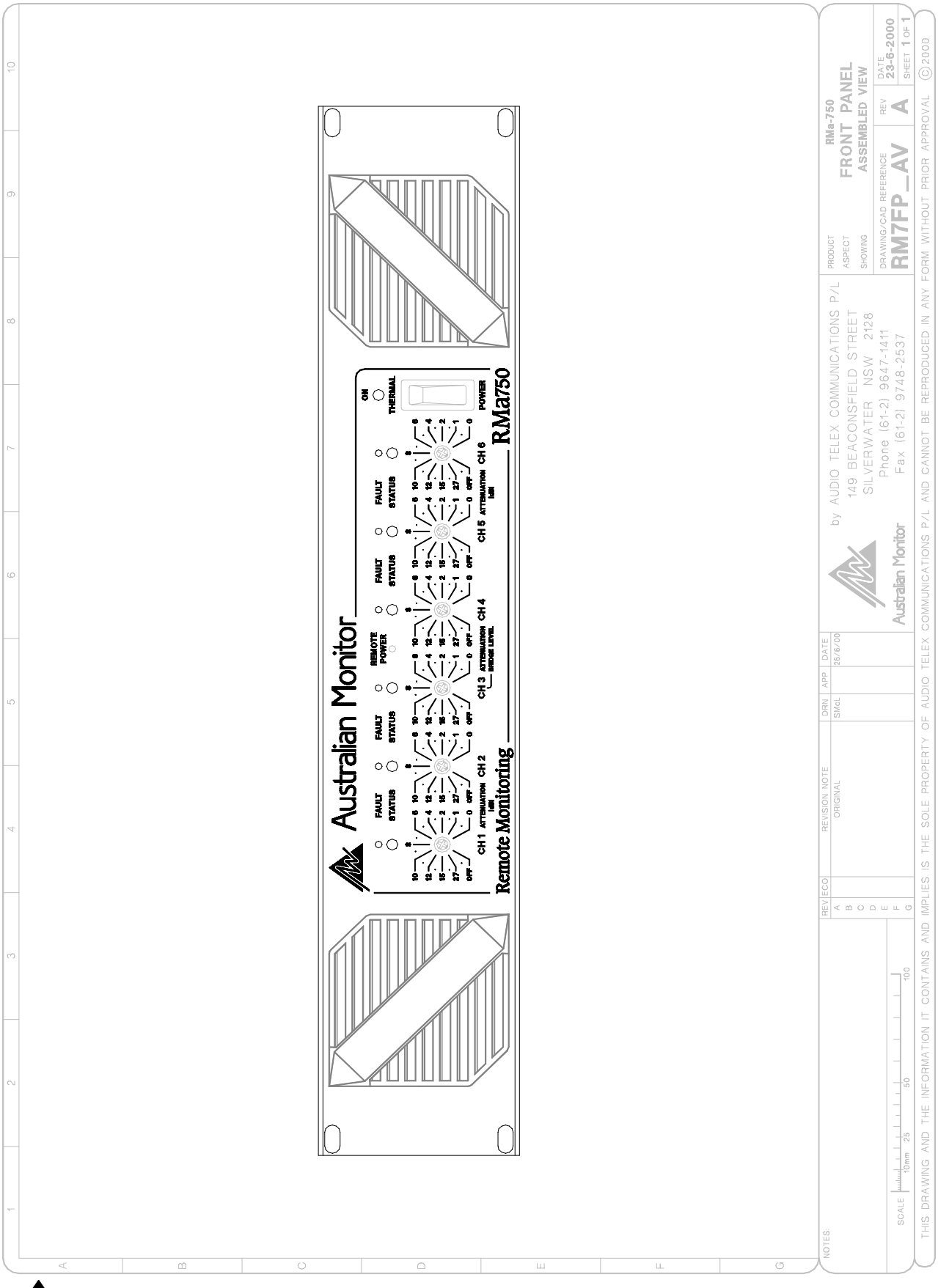
Yours Sincerely,

Stuart McLean.
Design & Product Engineer.
engineering@audiotelex.com.au www.audiotelex.com.au www.australianmonitor.com.au



Note:

Level control is via a tool adjust flush mounted pot shaft. The end of the shaft has a position indicator.


Australian Monitor
Remote Monitoring
RMa750
CH 1
CH 2
CH 3
CH 4
CH 5
CH 6
FAULT STATUS
REMOTE POWER
ATTENUATION MIN
MUTE LEVEL
POWER
ON
THERMAL
RMa-750
FRONT PANEL
ASSEMBLED VIEW
RM7FP_AV
A
23-6-2000
SHEET 1 OF 1
by AUDIO TELEX COMMUNICATIONS P/L
149 BEACONSFIELD STREET
SILVERWATER NSW 2128
Phone (61-2) 9647-1411
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Australian Monitor
REVISION NOTE
ORIGINAL
SCALE
NOTES.
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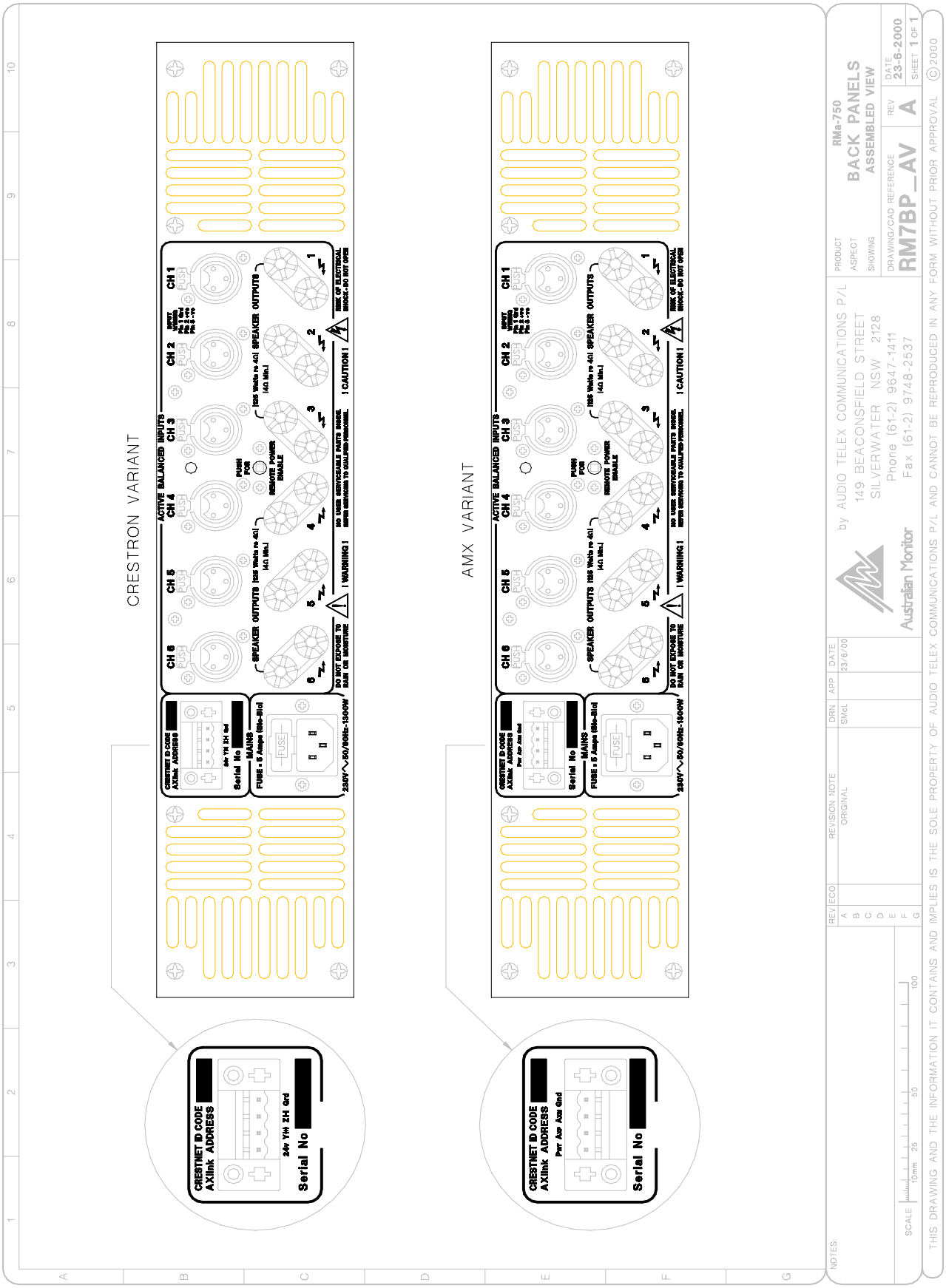
CRESTRON VARIANT
AMX VARIANT
CRESTNET ID CODE
AXlink ADDRESS
Serial No
24v Yel Zel Grd
Pwr Aux Aux Gnd
RMa-750
BACK PANELS
ASSEMBLED VIEW
RM7BP_AV
A
23-6-2000
SHEET 1 OF 1
by AUDIO TELEX COMMUNICATIONS P/L
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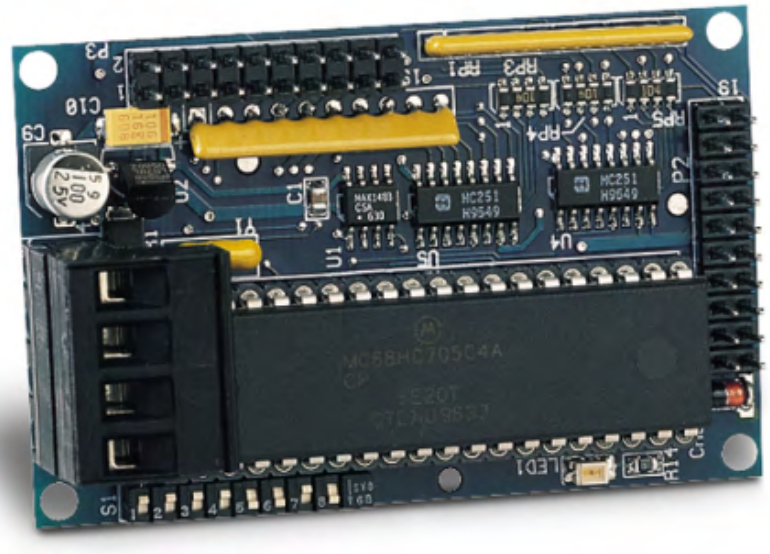
Operation/Reference Guide

AXP-CPI16

16-Channel Custom Panel Interface



Custom Panel Interfaces

Document ID: 038-004-1334
Last Revised: 8/16/2006

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AMX warrants its products to be free of defects in material and workmanship under normal use for three (3) years from the date of purchase from AMX, with the following exceptions:

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- AMX Lighting products are guaranteed to switch on and off any load that is properly connected to our lighting products, as long as the AMX Lighting products are under warranty. AMX does guarantee the control of dimmable loads that are properly connected to our lighting products. The dimming performance or quality cannot be guaranteed due to the random combinations of dimmers, lamps and ballasts or transformers.
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Product Information

The AMX AXP-CPI16 16 Channel Custom Panel Interface Board (FIG. 1) simplifies the process of creating custom control panels for Axcess systems. Providing contact closure inputs and feedback outputs for up to 16 buttons, the miniature PC board contains a 20-pin header for ribbon cable installation or for direct mounting to a printed circuit board.

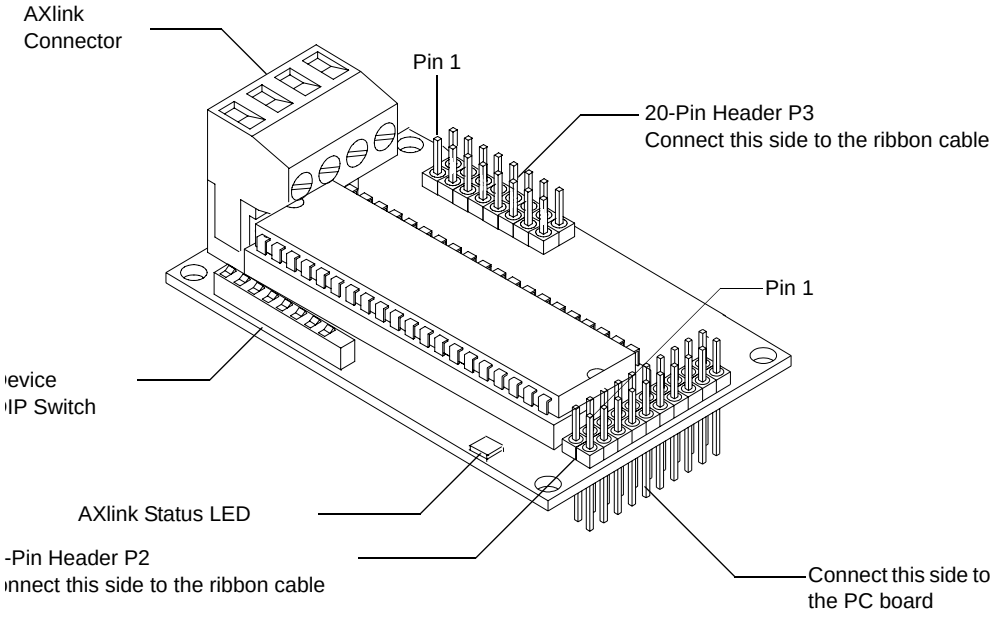


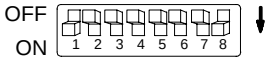
FIG. 1 AXP-CPI16 components

Specifications

The following table lists product specifications for the AXP-CPI16.

AXP-CPI16 Specifications	
Dimensions (HWD)	2.75" x 1.75" x 0.062" (69.90 mm x 44.50 mm x 1.557 mm)
Power	• Input voltage: 12 VDC (nominal) • Current draw: 25mA
Inputs	16 closure inputs with a common ground (GND)
Outputs	16 open-collector outputs, acting as switch to ground, up to 100 mA DC each for: • Board is not to supply more than 750 mA of +12V total. • Small incandescent lamps • LED indicators - with series resistor (1K for 12 VDC) • Relays - with DC coil
AXlink Connector	A 4-pin (male) connector attached to a four-wire cable which sends control data from the Axcess CardFrame to the AXP-CPI16.
Headers	Two 20-pin headers included for ribbon cables (up to 100 feet each) or for mounting directly to a PC board.

AXP-CPI16 Specifications (Cont.)	
AXlink Status LED	Indicates AXlink communication status as follows: • One blink per second communication is functioning. • Two blinks per second devices specified in the master program do not match the specified devices found. • Three blinks per second indicate an AXlink communication error. • Full-on indicates there is no AXlink control or activity (but power is on), or the Axcess program is not loaded.
Device DIP Switch	8-position DIP switch sets AXlink device ID.
Cables	Two 3-foot (91.4 cm) ribbon cables each with a female 20-pin header.


OFF
ON
1 2 3 4 5 6 7 8

Installation

Mounting Dimensions

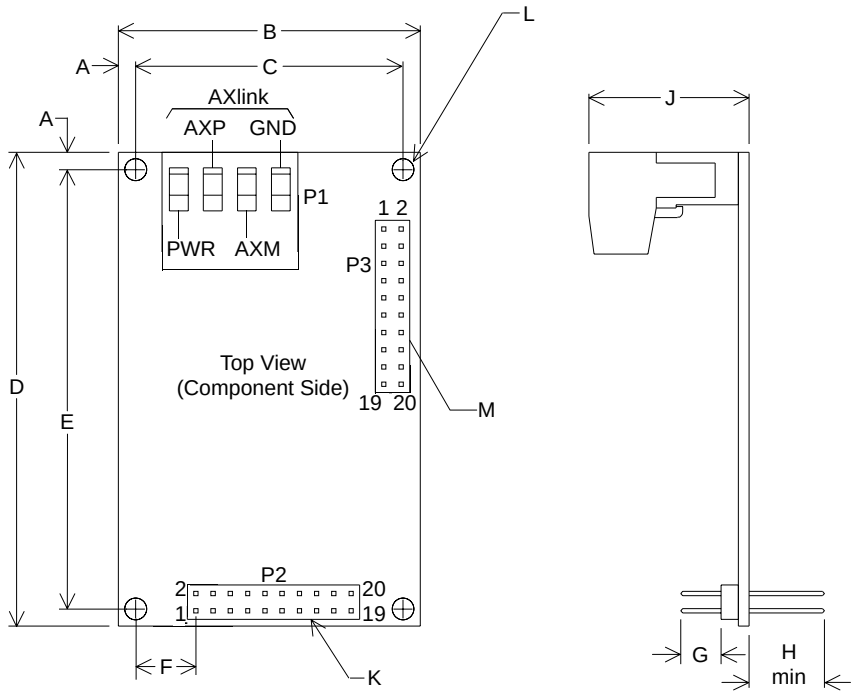


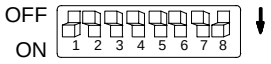
FIG. 1 AXP-CPI16 mounting dimensions

Mounting Dimensions				
Item	**Inch**	**mm**	**Item**	**Description**
A	0.10	2.50	K	P2 20-Pin Header .025 inch (6 mm) square pins, .1 inch (2.4 mm) typical spacing
B	1.75	44.50	L	0.125 Inch (3.2 mm) mounting holes for #4-40 (3 mm) screws
C	1.55	39.40	M	P3 20-Pin Header .025 inch (6 mm) square pins, .1 inch (2.4 mm) typical spacing
D	2.75	69.90		
E	2.55	64.80		
F	0.35	8.90		
G	0.23	5.80		
H	0.438	11.10		
J	0.93	23.6		

Setting the AXlink Device Number

The 8-position device DIP switch defines the AXP-CPI16 as an AXlink device. It can be one of 255 devices in the Axcess Control System. Set the device number with the total value of all ON (down) positions. As an example, the device DIP switch shown below defines device number 129 (1+128=129).

Position	1	2	3	4	5	6	7	8
Value	1	2	4	8	16	32	64	128



AMX standard device numbers are assigned as follows:

- Cards are 1 through 25.
- Boxes are 96 through 127.
- Panels are 128 through 255.

Preparing/connecting captive wires

1. Strip 0.25 inch of wire insulation off all wires.
2. Insert each wire into the appropriate opening on the connector according to the wiring diagrams and connector types described in this section.
3. Tighten the screws to secure the wires. Do not tighten the screws excessively; doing so may strip the threads and damage the connector.

Connecting the Two 20-pin Headers

The following chart notes the pinouts of the two 20-pin headers for P2 and P3.

AXP-CPI16 P2/P3 Pinouts							
P2				**P3**			
Pin	**Function**	**Pin**	**Function**	**Pin**	**Function**	**Pin**	**Function**
1	Output 1	11	GND	1	Output 9	11	GND
2	Output 2	12	GND	2	Output 10	12	GND
3	Output 3	13	Input 1	3	Output 11	13	Input 9
4	Output 4	14	Input 2	4	Output 12	14	Input 10
5	Output 5	15	Input 3	5	Output 13	15	Input 11
6	Output 6	16	Input 4	6	Output 14	16	Input 12
7	Output 7	17	Input 5	7	Output 15	17	Input 13
8	Output 8	18	Input 6	8	Output 16	18	Input 14
9	GND	19	Input 7	9	GND	19	Input 15
10	PWR	20	Input 8	10	PWR	20	Input 16

Pin 10 provides +12 VDC power from AXlink bus. Add 1K series resistors when using AXP-CPI16 with LED indicators receiving 12 VDC power from Pin 10.

Switch Wiring Diagrams

FIG. 2 diagrams LED and Switch wiring.

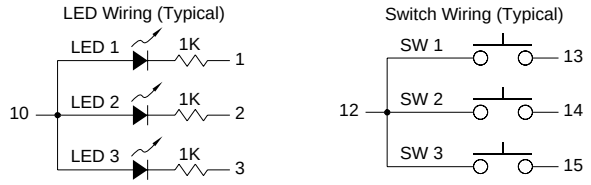


FIG. 2 LED and switch wiring diagrams

Connecting the AXlink Wiring

To install the AXlink data/power bus wiring.

1. Strip 0.25 inch off the wire insulation for all four wires. If the wire is 20 AWG or less, fold the exposed wire over to obtain a positive connection.
2. Insert each wire into the appropriate opening on the connector, as shown in FIG. 3.

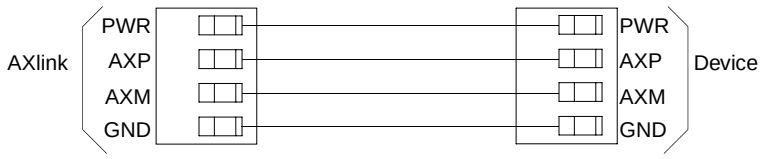


FIG. 3 AXlink wiring diagram

3. Tighten the screws to secure the fit.

Programming

Use the same Axcess commands as with other AXlink control panels, such as the AXU-MSP series mini-softwire panels. When using the AXP-CPI16 as a control device, use On, Off, and Pulse commands to control sources connected to outputs and Push and Release commands to receive inputs. For additional information, refer to the *Axcess Programming Language* instruction manual.

Send_Commands	
Command	**Description**
`'STATUS-ON'`	Causes the AXP-CPI16 to be in Status-On Mode. This command overrides the mode setting.
`'STATUS-OFF'`	Causes the AXP-CPI16 to be in Status-Off Mode. This command overrides the mode setting.

The AXP-CPI16 uses input channels to report user input on the contacts or switches attached to the input terminals. Output channels are used to turn on the lamp or LED display devices to indicate the button status to the user.

The AXP-CPI16 default mode is STATUS-OFF, and in this mode the programmer cannot poll the AXP-CPI16 to determine the state of the output channel. This is because in this mode the output and input channels use the same number assignments. Inputs are sent by the AXP-CPI16 only as input changes.

When set for STATUS-ON mode the output channels are assigned a different channel number than the input channels. This allows the programmer to monitor the status of an output channel. However the channel offset must be accommodated in the programming code. Statements such as this example can be used in a program.

```
IF[CPI16,25]  (* output channel assigned to input channel 9 on P3 connector *)
```

Each of the two 20-pin connectors is assigned a group of 8 input and output channels. The table below shows the relation of input and output channels in the STATUS modes.

Input/Output STATUS Mode			
Mode	**Connector**	**STATUS-OFF (default)**	**STATUS-ON**
Inputs	P2	Chan 1-8 (Push/Release only)	Chan 1-8 (On/Push/Off/Release)
	P3	Chan 9-16 (On/Off only)	Chan 17-24 (On/Off)
Outputs	P2	Chan 1-8 (Push/Release only)	Chan 9-16 (On/Push/Off/Release)
	P3	Chan 9-16 (On/Off only)	Chan 25-32 (On/Off)

The AXP-CPI16 may be configured to default to STATUS-ON mode using the following method. The commands can force a change to the mode no matter what default mode is configured for the device.

STATUS-ON Mode:

Remove R7 (1K ohm) resistor OR short across R8 for STATUS-ON mode. Firmware remains the same for standard and STATUS-ON mode AXP-CPI16 units.

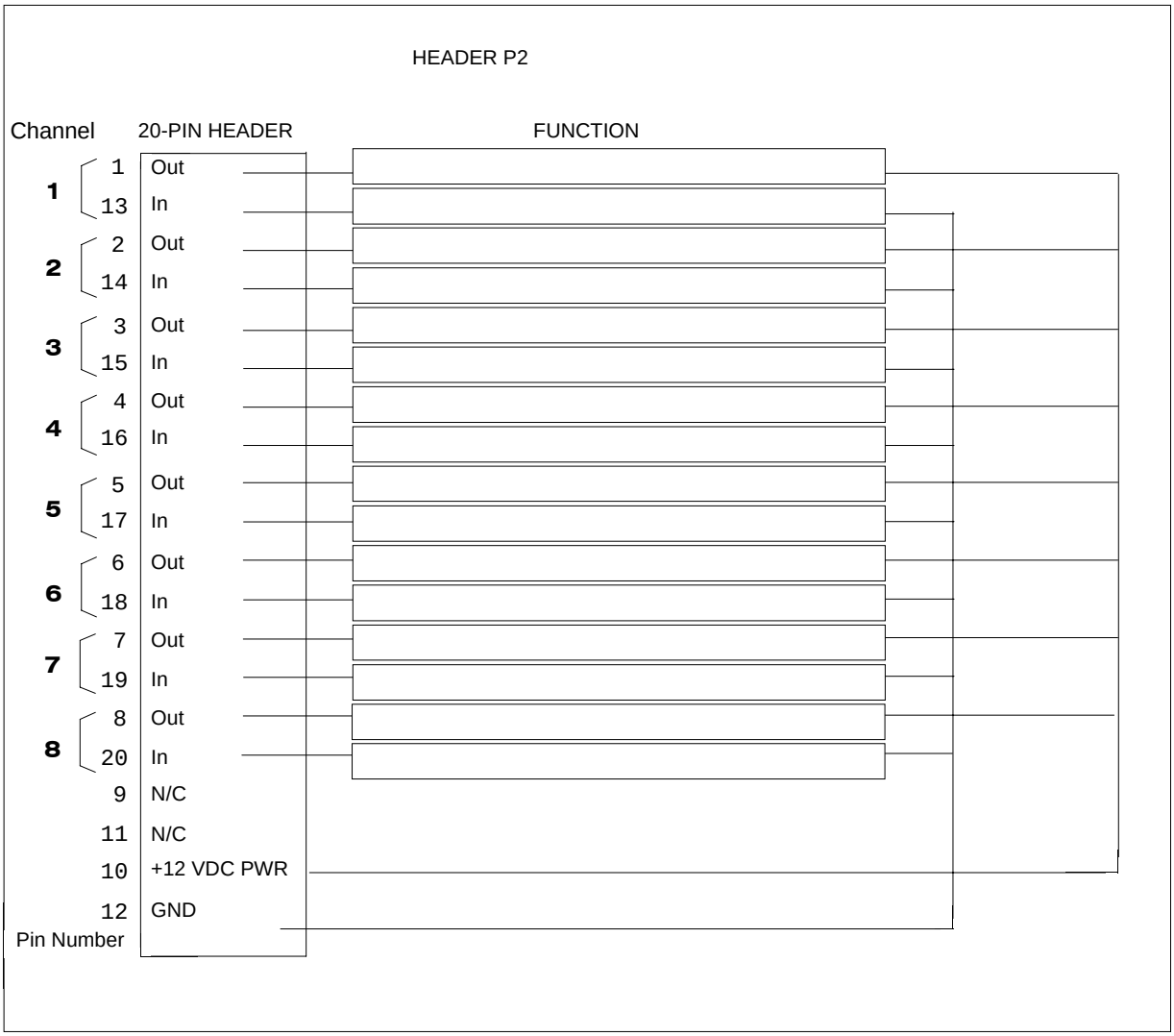
Testing the Unit

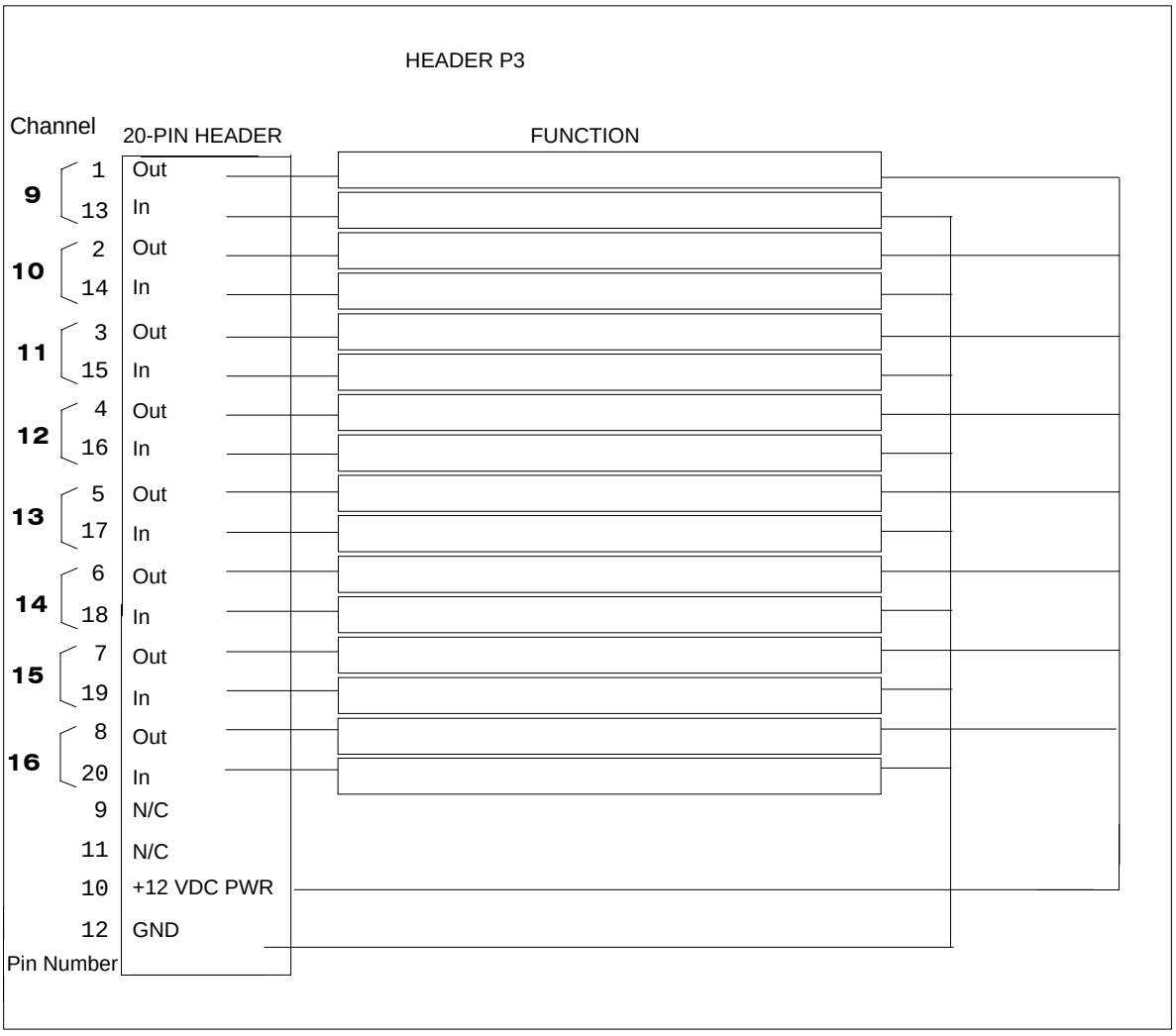
If you have programmed the Axcess software, load the program into a PC connected to the control system Master port. See Programming on page 4.

1. Push switches connected to the AXP-CPI16.
2. Look at the lower left of the Axcess screen to verify that the correct device and channel numbers are displayed.
3. Check for the appropriate feedback (as provided by the Master Controller program).

AXP-CPI16 System Worksheet

Dealer ID	**Date**
Dealer	**PO Number**
Job	**SO Number**
Description	**Serial Number**
Rev Number	**Device Number**




HEADER P3
Channel
20-PIN HEADER
FUNCTION
9
1 Out
13 In
10
2 Out
14 In
11
3 Out
15 In
12
4 Out
16 In
13
5 Out
17 In
14
6 Out
18 In
15
7 Out
19 In
16
8 Out
20 In
9 N/C
11 N/C
10 +12 VDC PWR
12 GND
Pin Number

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